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AUTHOR	Lomen, Lynn D.
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ABSTRACT

This study was designed to determine the degree to which English I, Political Science I, Mathematics 20, and Spanish I were perceived by Los Angeles Valley College graduates to have contributed to their acquisition of practical skills. A questionnaire listing 21 job-related skills (determined through employer and supervisor interviews) was sent to 450 "four year transfer" graduates, 300 "two year occupational" graduates, and 69 instructors; response rates were 63.6%, 63.6%, and 70%, respectively. In general, the instructors' ratings for each skill were higher than those of the graduates. The graduates perceived English I as having given them far more practical skills than any of the other courses; however, they rated all the courses rather low. The skills listed were: to speak to a group; to write a report; to read with accuracy and understanding; to be creative; to be adaptable and flexible; to use judgment in making decisions; to be neat and systematic in the presentation of material; to use scientific laboratory procedures; to do mathematical computations; to put things in categories; to memorize; to draw something; to understand about the environment; to be a leader; to understand about one's self; to understand about others; to plan work; to use self discipline in meeting deadlines; to practice using shorthand; to practice typing; and to use a library. (DC)

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TO DETERMINE THE PRACTICAL OR OCCUPATIONAL SKILLS THAT ARE TAUGHT IN FOUR NON-OCCUPATIONAL SUBJECTS AND IDENTIFY APPLICABLE JOB AREAS

LYNN D. LOMEN

A MAJOR APPLIED RESEARCH PROJECT PRESENTED
IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF EDUCATION

NOVA UNIVERSITY

1976

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Abstract of a Major Applied Research Project Presented to Nova University in Partial Fulfillment of the Requirements for the Degree of Doctor of Education.

TO DETERMINE THE PRACTICAL OR OCCUPATIONAL SKILLS THAT ARE TAUGHT IN FOUR NON-OCCUPATIONAL SUBJECTS AND IDENTIFY APPLICABLE JOB AREAS

By
Lynn Dana Lomen

June, 1976

This study undertook to determine where and to what degree 21 practical skills were perceived as learned by 1975 graduates at Los Angeles Valley College in four subjects, namely English I, Political Science I, Mathematics 20, and Spanish I. The instructors of these courses were also asked how they perceived the extent to which such skills were taught in these courses.

The graduates were divided into two groups, those who declared "four year transfer" majors on their graduation petitions and those who declared "two year occupational" majors on their graduation petitions. The instructors were those who taught the four courses during the three years before and including Summer Session, 1975. The assumption is made that most of the graduates were in classes taught by these instructors.

Of the 2070 graduates, a sample of 450 "four year transfer" majors and 300 "two year occupational" majors was chosen to be surveyed. Sixty-nine instructors were included in the study. A questionnaire listing 21 job-related skills (determined through employer and supervisor interviews and research) was sent to each of the participants.

Three separate mailings were required to obtain a 63.6% response from the non-occupational (transfer) majors and 63.6% of the occupational majors. Seventy percent of the instructors responded.

Through the use of Chi square, the graduate sample was shown not to be as representative of the total population of the graduating class as had been hoped. However, while some error might occur in this study it is believed that the two groups are close enough to provide valuable information.

The questionnaire asked the graduates and the instructors to rate the learning of various skills, such as "To speak to a group," "To write a report," "To be creative," "To be neat and systematic in the presentation of material," "To put things in categories," "To understand about one's self," "To practice using typing skills," etc. on a five point scale (0-4). The questionnaire also asked for information on the graduates' present employment status. Age and sex information were taken from the college records. Results were described in terms of frequencies and percentages.

English I was perceived by the graduates as giving them more practical skills, by far, than Political Science I, Mathematics 20, or Spanish I. In general, all the courses were rated rather low by the graduates, implying that they did not perceive a high level of skill learning in these classes. The ratings generally were in the "infrequently" to "frequently" range, while "very frequently" was rarely reached and "almost always" was not reached in the mean scores, although it was reached on some individual ratings. In general the instructors ratings for each skill were higher than those of the graduates. They perceived much more attention to the teaching of practical skills than did the graduates.

The conclusions that can be drawn from the study are that: 1) practical skill teaching is not consciously going on in these classes with any high degree of frequency; 2) the instructor is not making the student aware of the useful applications of the many skills that are practiced or learned in the classroom; and 3) the students included in the study did not realize the practical potential of skills taught in the courses.

Recommendations of the study are that seminars be given for instructors to point out many of the applications of their subject matter. Several examples of how some of the skills can be taught in each of the classes are shown. Employers and personnel managers should be used in these seminars to point out the skills needed in business and industry. The appendix includes a section that shows the various occupations where the skills are applicable. Trips to business and industry are recommended for instructors to give them first hand observation of the skills needed for successful employment. Instructors should point out the practicality of both subject matter and skills involved in completing classroom assignments. Several suggested studies that would be valuable are:

1. studies of other general education classes to see what skills are perceived as learned by students;

2. whether the unemployed, who are seeking employment, see less skill learning in college than those who are employed;

3. which aspects of a class help students the most in their occupational endeavors;

4. which parts of the course content are felt to be most valuable by employers; and

5. how many community college graduates are working in their major field.

The study includes, in the appendix, a guide to skills learned in the courses and their applicable occupations. This is meant to help both the student and the instructor make classes more meaningful. Much can be done to help the student perceive the worth of the various facets of a classroom experience.

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Chapter 1

BACKGROUND AND STATEMENT OF THE PROBLEM

Introduction

Vocational, occupational, career, or any other term by which this type of education is called has come to mean that a skill can be acquired. Definite learning objectives can be established and the students can show at the end of the course that they have acquired a skill. With these demonstrable skills, it is presumed that the student is employable.

More students at Los Angeles Valley College (LAVC) declare "transfer" or "academic" majors than declare "occupational" majors. This is true of most community colleges, yet most of these students never find their way to the four-year college or university and many that do never complete a baccalaureate degree. Many students take a transfer course just for the prestige of saying that they are going to transfer to a four-year college. Many feel that an admitted occupational goal has a low-quality stigma attached. Others really do not have clearly defined goals and take the general education courses in the hope that an interest will evolve. In some cases personal problems, financial problems, peer pressures, poor grades, unfulfilled expectations and many other factors cause the student to terminate the four-year college experience.

Instructors say that many students should never take an "academic" course in the first place because of lack of ability or motivation. Nevertheless, this type of matriculation happens and will continue to happen. Certain skills that are presented in or are a part of a course apply to many occupational areas. Instructors and students should be made aware of these skills and their applicability. For example, interviewing skills, filling out applications, and writing resumes might be a by-product of English composition and speech classes, while research skills can be a part of many classes where term papers are required. Typing skills can be improved and promoted through any class requiring papers.

There are insufficient data on what happens to students who have withdrawn from college. How do they perceive their learning experiences? Do they know what skills they have? Young (1975) stated that a Bureau of Labor Statistics report of 1972 college graduates showed that nearly 40 percent were in jobs not directly related to their major field. Valencia (1975) states that even in a tight labor market many excellent jobs go unfulfilled because the graduates have "tunnel vision" and cannot see the opportunities beyond their major. He further states that most jobs do not require a specific major. "Therefore," Valencia says, "the real keys to employment are maturity, leadership, responsibility, enthusiasm, pleasing personality, confidence, and a high energy level--all characteristics that are not exclusively developed by any one specific academic major." Students need to be apprised of their worth and of their options. The Chancellor's Office of the California Community Colleges is attempting to find out what happens to these students through its Student Accountability Model Study. Studies now under way may provide information that will be helpful in making students aware of their options. There is evidence that skills learned in "academic" classes are valuable in a variety of occupations.

Hoyt (1974) says, "Career education encompasses all education in that it is that part of a learning experience that assists one to discover, define, and refine his talents and use them in pursuit of a career". Many, if not most, instructors of "academic" subjects do not realize the skills they teach outside the realm of their subject matter. Employers frequently do not realize that many of the skills that they value may be learned in these classes.

In referring to the problem of the education change of the population, Wolfbein (1974) states that:

> Between 1960 and 1970, the proportion of the labor force 25 years of age and older having four or more years of college rose from 10% to 15%. By 1980 this proportion will be closer to 20%, and by 1990 it will approach 25%.

This, of course, compounds the issue for those with less than a baccalaureate and makes it increasingly imperative that they know what their skills are and how and where to use them.

Statement of the Problem

Courses that have previously been referred to as "academic," "liberal arts," or "general education" are usually thought of as having little or no occupational value outside of, perhaps, teaching. They are sometimes referred to as "culturally broadening," rather than practical or occupationally useful. Yet, Windle (1972) quotes a study by Calvert, in 1967, of 11,000 graduates who strongly endorse a liberal arts education as a good background for occupations. Travis (1974:1) states that "two-thirds of the jobs which require a college degree do not have, as an absolute requirement, a particular major. In many cases, a non-marketable major can lead to a very marketable degree." The Carnegie Commission (1973) stated that the college can help students by assisting them in seeking broad training in college rather than narrow specialization, unless they have a very carefully chosen goal in mind. Many graduates do not get jobs in the specific field of their undergraduate major, yet college can benefit them greatly by giving them skills and knowledge useful in many jobs, and by giving them information on how to benefit by training so that their subsequent on-the-job training will be more effective. College helps both ways.

As well as proponents, there are opponents to liberal arts education as a preparation for work. Babbush (1974) says, "Today, in our highly sophisticated and technical society, the competition is keen for available jobs. The almost 50% of our graduates who are liberal arts majors unfortunately are often not equipped to compete." In an article by Trombley (1975:1-2), Terrell H. Bell, U. S. Commissioner of Education, is quoted as saying, "To send young men and women into today's world armed only with Aristotle, Freud and Hemingway is like sending a lamb into the lion's den." He further advised liberal arts colleges to "roll successfully with the times" and provide students with "a saleable skill."

There seems to be a misconception of the meaning of a liberal arts education. Many instructors of liberal arts subjects as well as the detractors of a liberal arts education, seem to picture such courses as mere philosophy without skills attached. Babbush (1974) states:

> A truly liberally educated graduate will have a wide diversity of academic courses not limited to courses in the humanities and fine arts but also including the sciences, applied arts, and technical appreciation as well as an understanding of the contributions of business in our society. Unfortunately our present day liberal arts education does not seem to perform this function.

An article by Valencia (1975) states the following:

> Obviously at this time, a lot of people are aware of the tight labor market--particularly for new college graduates. We hear and read statistics daily of growing unemployment, a slowing of the economy, and fewer hires in fields such as education... To some, this reality blossoms into the myth that there are no suitable jobs or careers for new college graduates. However, our experience in Placement indicates that even in a tight labor market. many excellent jobs leading to careers to unfilled; and in many cases, because graduates have developed "tunnel vision" and do not consider job opportunities in fields outside their particular academic major.
>
> In considering majors with respect to the world of work, it is important to remember that "major" is an academic term, not an "entry permit" to a job. In fact, our experience shows that from a job opportunities standpoint, one particular liberal arts major does not appear to be much different from another. Admittedly, there are several other majors that are more directly job related or applied than others, but this is not a great disadvantage because a large majority of jobs available to new

> college graduates do not require a specific major. If employers aren't looking for a specialist such as an engineer, nurse, etc., they are really looking for raw talent and someone with a potential. Therefore, the real keys to employment are maturity, leadership, responsibility, enthusiasm, pleasing personality, confidence, and a high energy level--all characteristics . . .which are not exclusively developed by any one specific academic major.
>
> From our perspective in Placement, liberal arts graduates are well-prepared to adapt to a wide range of jobs and career-related demands. Often, however, liberal arts students and graduates, as well as employers, are not as aware as they might be of the many job competencies developed by a liberal arts education. This often results in a loss to the graduate and to the employer. New graduates might well improve and expand career opportunities for themselves and others by highlighting the many relevant aspects of a liberal arts education in relation to the world of work.

Students tend to perceive courses in different ways depending on their goals, on their background, and on their interests.

Whether the students have declared themselves as non-occupational (transfer) students or occupational students, they graduate or drop-out of the community college each semester and enter the job market. The occupational major has usually taken classes, with a practical skill involved, along with general education classes that lead to the Associate of Arts or Science degree. The non-occupational major has usually taken general education courses and specific major courses that are designed for a transfer to a four-year college or university as well as for an Associate of Arts degree. The question that the latter student asks is, "What skills do I have that will give me some job options?" The occupational student might ask, "What skills have I learned, other than in my major, that will give me additional job options?"

With the present economic crisis and the limited availability of employment, occupational flexibility is important to young people who are entering the world of work. The problem is that most students do not realize that they can learn many skills, needed in occupational pursuits, from general education classes. Therefore, the purpose of this study is to determine the extent to which:

1. non-occupational students perceived that 21 specified skills were learned in four non-occupational subjects;
2. occupational students perceived that 21 specified skills were learned in four non-occupational subjects; and
3. instructors of the four non-occupational subjects perceived that the 21 specified skills were taught in the classroom.

The specified 21 skills were determined through conferences with instructors, career counselors, employers, supervisors, personnel managers, employment counselors and research material. These skills appeared most frequently as those felt to be necessary to the success of the employee in a wide variety of occupations.

Delimitations of the Study

The deliminations of the study are as follows:

1. The study was limited to a sample of graduates from LAVC in January 1975, June 1975, and Summer Session 1975. The sample was taken from the graduation petitions of all students who declared themselves to be two-year occupational students or four-year transfer students.

2. The study is limited to LAVC but could be applied in some respects to other community colleges with similar populations.

3. The study asked questions about only four courses: English I, Political Science I, Spanish I, and Mathematics 20 (see Appendix A).

4. The instructors surveyed were the instructors of the stated courses for the two years preceding and including Summer Session 1975.

5. The study did not purport to measure the quality of instruction but only what skills the students perceived they gained from the classes and what skills the instructors felt they taught in the classes.

6. The questionnaire items dealing with skills were limited to the 21 skills identified by employers, instructors, and career counselors in a preliminary survey.

Limitations of the Study

Limitations that could have affected the study are:

1. The graduates' reading ability may not have been at the level of the questionnaire.

2. Not all the graduates took all four courses.

3. The ratings were limited to only those skills that the graduates remembered or were reminded of by the questionnaire.

4. Since the questionnaire was coded, it is possible that this was recognized as an identification that may have identified the student and the instructors might have answered the questionnaire the way they thought acceptable.

5. If those who did not answer the questionnaire felt self-conscious about not using or teaching the skills the results would be from a biased group.

6. The rating terms may have been subject to misinterpretation.

Chapter 2

REVIEW OF RELATED LITERATURE

In this chapter an attempt is made to summarize the literature pertinent to this study on occupational skills from 1960 to the present.

Throughout the preliminary investigation it became increasingly apparent that the literature related to the problem was sparse. Many colleagues suggested ideas and literature pertaining to parts of the study. Computer searches from the Educational Resources Information Center (ERIC) Clearinghouse in Career Education, the Los Angeles County Evaluation, Research Services (LANCERS), and Xerox Datrix provided many valuable references. Others were found through library sources. It must be emphasized that colleagues were a valuable source of information, as were unpublished papers, and seminar reports that might not have been obtained from traditional sources.

Wolfbein (1965) points up the problem of increased education of the general population. He showed that, "In 1940 about one third of all workers had a high school education or better; by 1964 the corresponding proportion was over 55 percent." A more recent article, Wolfbein (1974) states that "One of the more salient phenomena on the educational scene is that the school attainment of workers keeps going up." This points out the increasing problems confronting the student who is unable to complete a four-year curriculum.

Young's article, (1975) states that about 40 percent of the 1972 graduates with baccalaureate degrees were in jobs that were not directly related to their major. A comment on this is offered by Granger (1974) in his article. He states that many of the jobs held today were not even thought of ten years ago and will perhaps go out of existence in another ten years. The U. S. Labor Department reports show that "the average 20-year-old man can be expected to change jobs about six or seven times during his life." Granger points out that a liberal arts education has its strengths in that it teaches students a "breadth of understanding" and thereby makes him more flexible and adaptable. A liberal arts type of education is for a "career pattern" rather than for a "job."

This again is pointed out by Heil (1974). He says:

> Finally, pure training, no matter how good, unfortunately tends to place one at the mercy of the job market. One may find the demands for one's services rising and falling with the fluctuations of the economy. This means that, to the extent that one's background is more general, one will be more adaptable to changing job conditions.

A study by Smith (1974:5) in Canada studied generic skills.

> Generic skills are those which are fundamental to the performance of many tasks and sub-tasks carried out in a wide range of occupations and which are basic to specific job skills. Generic skills include many of the concepts generally referred to as mathematics skills, communication skills, reasoning skills, interpersonal skills and manipulative skills.

Examples of generic skills in each of the five areas mentioned above could be:

1. Mathematics-multiplying whole numbers, adding fraction.
2. Communication-reading to determine job requirements, recording data on forms.
3. Reasoning-scheduling work, diagnosing problems, making decisions.

4. Interpersonal-giving rewards and discipline, using attending behaviors, using group maintenance skills.

5. Manipulative-using hand/eye coordination, using proper posture for lifting and carrying.

In another study, Smith (1974) surveyed 820 supervisors and 830 employees in 46 different occupations on the need for reading skills. The study covered not only reading skills, but also writing, listening comprehension, talking (one-to-one), group discussions, talking (to an audience), interview/counsel, and instructional talking.

As an example, he found that writing words and phrases on forms was used in 100 percent of jobs, writing notes was used in 51 percent, and writing sentences was used in 46 percent. In reading comprehension, literal comprehension, was needed in 100 percent of jobs, interpretive comprehension in 54 percent. Reading of forms was used in 100 percent of the jobs, reading books and manuals in 97 percent, notes and memos in 92 percent, and letters in 86 percent. In listening comprehension, literal comprehension was used in 100 percent of jobs and interpretive in 90 percent. The skill of talking, one-to-one, was used in giving directions in 100 percent of the jobs, in giving information on 100 percent of the jobs, in asking questions on 100 percent of the jobs, and in debating with peers and supervising on 100 percent of the jobs.

The aforementioned skills were broken down more fully in use percentages; the other skills mentioned were also surveyed and use percentages given.

Diamond (1974) wrote a manual for students showing them how to relate their major to a career goal. The manual covers all majors offered at California State University, Los Angeles. Listed under each major is a description and the requirements of the field, career opportunities, and sources of information.

The sections on English, Language, History, and Mathematics majors pointed out some skills, not usually considered, that are acquired through the classes. Although not as specific as one might like, this manual offers the reader many occupational ideas that are not usually thought of. The book certainly broadens one's occupational outlook.

The General Report of the Advisory Council on Vocational Education, U. S. Department of Health, Education, and Welfare (1968:1-2) states the following:

> The relevance of education for employment arises from better educated labor and a technology that requires it. The educational skills of spoken and written communication, computation, analytical techniques, knowledge of society and one's role in it, and skill in human relations are as vital as the skills of particular occupations.

It goes on to state that vocational education is not a separate curriculum, but should be a "basic objective of all education."

Bush, (1969) sets forth a Taxonomy of Work" that describes levels of work, the job characteristics of each level, the functional domain, and the function, which is broken down into Things, Data, and People. The study relates various experiences of students who were transformed into occupationally-needed persons through work-learn experiences.

A study by Dayton (1973) and another by Magram (1970) were typical of several elementary and secondary school studies. These studies integrated vocational and academic education through practical activities and projects in various interest areas. Studies such as

"Technology for Children" of the New Jersey Department of Education, the Nova Schools in Florida, San Mateo Unified School District's "Zero-reject" concepts for curriculum planning, "Partnership Vocational Education Project" at Central Michigan University, and the "Richmond Plan" of the Richmond High School District and Cogswell Polytechnic College in California were approximately the same. These studies all reported significant increases in grade point averages, increased percentages in attendance, and lessening of the drop-out rate.

Eldon Brue's study (1971) was quite interesting and helpful in understanding some differences between transfer and occupational students. It showed that transfer students rated communication skills the highest while mechanical and mathematical ability were significantly higher in the occupational students' self-ratings. Speaking, writing, selling skills, and managerial skills were also rated higher by transfer students than by occupational students.

Brue also covers the many factors that go into predicting why students may choose the directions they do in continuing college careers and curriculum.

Burckel (1966:279) reviews various studies and publications that have been written on occupations. He states that "the primary objective of American public education is to enable its citizens to live, work and play in their environment." He points out that the most important skills is communication. He further states, "Only one element is creating problems in higher (and hire) education."

> The explosion of knowledge has resulted in fragmentation; what was once called science is now divided into mircrobiology, bacteriology, biostatistics, ichthyology, immunology, marine biology, fish and game, etc., etc. Furthermore the fragmentation of knowledge has resulted in fragmentation of its application called jobs, vocations, professions, etc., etc.

Orange (1972) and Huebener (1975), issued publications that list various occupational possibilities for the respective majors. This was a great help to this study.

The United States Civil Service Commission (1969) also lists various occupations that are suitable for college majors. This is an incomplete list, but it added several suggestions to the usual list of occupations.

Angel (1970) was very helpful. The publication listed most of the possible college majors together with a number of needed skills and possible occupational possibilities. The book further explored the various occupations and the skills that were needed to qualify, related fields and where employment might be found.

Several studies (1968, 1972) reported by the Texas Education Agency were reviewed. These programs integrated vocational education with academic education in a meaningful way. Both reported a decrease in the absence rate, the drop-out rate, and the rate of disciplinary referrals. Students increased both their mastery of specific performance objectives and their retention rates.

Such studies were typical of those conducted at the elementary and secondary level.

The Occupational Outlook for College Graduates is a manual of information compiled by the U. S. Department of Labor (1974). It covers a variety of occupations, in rather general categories. Each occupational category is broken down into sections that describe the nature of the work, places of employment, training and other qualifications; and advancement, employment outlook, earnings, working conditions, sources of information, and the Dictionary of Occupational Titles numbers.

For this study, the training and other qualifications section and the Dictionary of Occupational Titles numbers were most valuable in determining skills and relating jobs to them.

In "College Graduates and Jobs," a report by the Carnegie Commission (1973) of various studies of college graduates, their major fields of study and their job opportunities were discussed. Many of the statistics came from 1970-71. The obvious dating of the report and the great changes that have taken place since that time tended to negate many of the predictions and possibly some of the recommendations. The report, however, did reveal some trends and recommendations in subject area concentration that are interesting and bore out certain contentions of this study. It also gave statistics on students who had not completed college, and their occupations.

The Dictionary of Occupational Titles (DOT), Volumes I and II (1965) is a comprehensive study that offers detailed information about occupations. Volume I gives definitions of job titles, the occupational classification, codes, and information on the arrangement and uses of the dictionary. Volume II was much more helpful to this study. It gives information on areas of work, worker traits, jobs according to the industry where they are found, a description of the job's relationship to data, people, and things. This volume also gives a rating showing whether the job is more mental or physical, the aptitudes, preparation, and temperament needed for the job, and the physical working conditions. For this study, the various skills needed and the related occupations that were listed for each job category were most helpful.

Hopke (1972) is also published in two volumes. Volume I, "Planning Your Career," covers career testing, how to find a job, future outlook for graduates, and is then divided into broad fields from advertising to truck transportation giving an overview of each area. Volume II, "Careers and Occupations," goes into specific occupations from accounting to X-ray technician. It gives a definition, the Dictionary of Occupational Titles numbers, the history, the nature of the work, requirements, special requirements, opportunities for experience and exploration, methods of entering, advancement, employment outlook, wages, working conditions, social and psychological factors, and additional sources of information. The requirements section and the D.O.T. numbers were most helpful to this study.

One helpful study surveyed was a "Student Occupational Skill Questionnaire" from Pasadena City College (1975). In this questionnaire, 50 students from each department in Social Science, English, Mathematics, and Life Science were asked questions about various skills learned in the various classes.

The questionnaire included such questions as, "Did the course help you to speak more understandably?" "Did the course help you to write more understandably?" "Did the course improve your shorthand and/or typing?" The questions went on to include learning more about people, being sensitive to people, developing leadership, self-confidence, self-image, etc.

A summary of responses showed that 50 percent or more of the students felt that they received very little or no instruction at all in the skills listed. A companion study of department chairmen was conducted by interviews using similar questions. The department chairmen felt that they taught or gave students experiences in most of the skills listed.

In summary, this researcher found that specific information was fragmentary. General statements and reviews of vocational-academic curriculum combinations were plentiful but not specific. This further pointed out the need for a compilation of specific information.

Chapter 3

PROCEDURES

Determining the Value of the Study

The first step was to conduct a preliminary investigation to determine whether the topic was significant. Informal interviews with seven department chairmen, twelve employers, supervisors, and personnel managers, a representative from the Employment Development Department, two career counselors, 20 or more students, and an evaluation specialist from the California Community Colleges Chancellor's office were conducted to obtain their ideas about such a study, and to get material and ideas for the study's content. A unanimous, enthusiastic response was received. The proposal was written, accepted, and the following steps were taken to complete the study.

Sample Selection

A survey of LAVC alumni was the basis for this study. A sampling of 300 alumni was chosen from the 2070 students in the graduating classes of January 1975, June 1975, and Summer 1975 from the graduation petitions of those students who graduated and who said that they were two-year occupational students. Similarly, a sampling of 450 alumni, who declared on their petitions that they were four-year transfer students, was selected from the same graduating classes.

The instructors included a group of 69 who taught either English I, Political Science I, Mathematics 20, or Spanish I during the three years before and including Summer Session, 1975. A departmental distribution of the instructors' sample is shown in Table 1. No comparison was made between male and female instructors.

The sizes of the samples were determined by the procedures manual of the Student Accountability Model Project, California Community Colleges Chancellor's Office (1974). This sampling was designed to reflect the population accurately to within ± five percent.

Selection of the Courses to be Studied

The courses are: English I, Political Science I, Spanish I, and Mathematics 20 as offered at LAVC (Appendix A). The subject areas were selected because they are often perceived as having a very narrow or a very small occupational application and because they have heavy enrollment each semester. A list of ten subject matter areas was narrowed to four because it did not seem feasible to include more than four as a representative group.

Pilot Study

In efforts to refine the questionnaire still further, the graduate questionnaire was administered to two classes, a total of 60 students, to determine its clarity. Student comments were then incorporated into the final questionnaire.

The instructor questionnaire was given to ten instructors in disciplines not related to the study to test its understandability. Corrctions were incorporated in a revised form of the questionnaire.

Survey Instruments

After consultation with instructors, career counselors, employers, supervisors, personnel manager, and employment counselors, a list of general skills deemed important to various occupations, was developed. This list was formed into a questionnaire (see Appendix B) and sent to both alumni samples. In this questionnaire, the graduates were asked to mark for each course they had taken the extent to which they had learned the skills, using the scale: 4 = almost always, 3 = very frequently, 2 = frequently, 1 = infrequently, 0 = never. The same questionnaire with modifications (see Appendix C) in instructions was sent to the faculty members of LAVC, who taught the various courses selected for the study.

The questionnaires were reviewed by the major adviser, the local reader, and an evaluation specialist from the California Community Colleges Chancellor's Office. Revisions were again made. The Nova Central Staff Reader and the Nova MARP Director, made suggestions for revisions.

The questionnaires were then sent to the random sample of graduates and to all of the instructors at LAVC who taught any of the four courses during the three years preceding and during Summer Sesseion 1975. Two follow-up questionnaires were sent out to those who failed to respond to the first letter.

Questionnaire Response and Evaluation

Responses for the total group were tabulated, a mean was found for each item for each course, and the total of each area was calculated.

The ages and sex of the respondents were compared with those of the total population by calculating the mean and standard deviation to determine if the sample represented the total population.

The extent of variation between the non-occupational students and the occupational students and the instructors was determined through the following calculations:

a. calculations of mean rank scores were made for occupational graduates, non-occupational graduates, and instructors for the four courses listed in each skill and for the total.

b. charts and graphs were prepared showing means, number for each skill and subject; a rank order of skills determined by the means; a line graph comparing the means of the occupational, non-occupational graduates and the instructors for each subject and the total.

Chapter 4

RESULTS

Introduction

The results of this study are based on the responses of 476 graduates and 48 instructors from LAVC. The respondents are from the graduating class of 1975. The instructors are those who taught the four courses surveyed during the three years preceding and including the 1974-75 school year. The results gathered are shown in table form on the following pages of this chapter.

Response to Survey

Table 1

DISTRIBUTION OF INSTRUCTORS QUESTIONED

	Total Number	Number of Respondents	%	Male	Female
English I	27	17	63	11	6
Political Science I	11	8	73	8	0
Mathematics 20	19	16	84	15	1
Spanish I	12	7	58	6	1
Total	69	48	70	40	8

Occupational Majors

Of 300 questionnaires sent to occupational majors, 190 usable responses were returned (63.3%). Seventeen students returned their questionnaires stating that none of the classes had been taken, some did not want to respond, and some responded improperly. Fifteen questionnaires were undeliverable. The number of respondents who had taken each course was: English I, 157; Mathematics 20, 52; Political Science I, 117; Spanish I, 35.

The employment status of the 104 males (55%) and 86 females (45%) responding showed 129 were employed full-time, 29 were employed part-time, 13 were unemployed, 10 were not seeking employment, and 9 did not respond to the question (Table 2).

Table 2

EMPLOYMENT STATUS OF OCCUPATIONAL MAJORS

Employment Status	N	%
Full-time	129	68
Part-time	29	15
Unemployed	13	7
Not seeking employment	10	5
No response	9	5
Total	190	100

The age and sex distribution of the Occupational Major Sample is shown in Table 3.

Table 3

AGE AND SEX DISTRIBUTION OF THE OCCUPATIONAL MAJOR SAMPLE

Age Range	Male		Female		Total	
	N	%	N	%	N	%
19 - 20	4	3	13	15	17	9
21 - 24	30	29	42	49	72	38
25 - 29	26	25	11	13	37	19
30 - 34	17	16	5	6	22	12
35 - 39	10	10	6	7	16	8
40 - 44	9	9	2	2	11	6
45 plus	8	8	7	8	15	8
Total	104	100	86	100	190	100

Non-Occupational Majors

Of the 450 questionnaires sent to the non-occupational majors, 286 usable responses (63.3%) were received. Thirteen students returned theirs unmarked stating that none of the classes had been taken, they did not want to respond, or they responded improperly. Seventeen questionnaires were undeliverable. The number of respondents who had taken each course was: English I, 273; Mathematics 20, 110; Political Science I, 179; Spanish I, 79.

Of the non-occupational majors, 135 (47%) were male and 151 (53%) were female. Eighty-four were employed full-time, 107 were employed part-time, 23 were unemployed, and 51 were not seeking employment and 21 did not respond to the employment status question (Table 4).

Table 4

EMPLOYMENT STATUS OF NON-OCCUPATIONAL MAJORS

Employment Status	N	%
Full-time	84	29.3
Part-time	107	37.4
Unemployed	23	8
Not seeking employment	51	18
No response	21	7.3
Total	286	100

The age and sex distribution of non-occupational majors is shown in Table 5.

Table 5

AGE AND SEX DISTRIBUTION OF THE NON-OCCUPATIONAL SAMPLE

Age Range	Male		Female		Total	
	N	%	N	%	N	%
19 - 20	24	18	43	28.5	67	23.4
21 - 24	51	38	45	29.8	96	33.6
25 - 29	32	24	23	15.2	55	19.2
30 - 34	10	7	10	6.6	20	7.0
35 - 39	11	8	7	4.6	18	6.3
40 - 44	0	0	10	6.6	10	3.5
45 plus	7	5	12	8.0	19	6.6
No response	0	0	1	0.7	1	0.4
Total	135	100.00	151	100.0	286	100.0

Representativeness of the Student Sample

To establish the validity of the study it is important that the sample represent the total population covered by the study (Table 6).

Table 6

DISTRIBUTION OF THE RESPONDENTS BY AGE, SEX AND FREQUENCY

Age	Male		Female	
	Expected Frequency*	Observed Frequency	Expected Frequency*	Observed Frequency
19 - 20	77	28	71	57
21 - 24	59	80	55	87
25 - 29	42	59	38	34
30 - 34	22	27	21	14
35 - 39	14	21	13	13
40 - 44	8	9	23	12
45 plus	12	15	23	18
No answer	13	0	12	1

*Determined by extrapolating from the percentages of the sex and age groups in the graduating classes.

A tentative inspection of the sample data indicates a disproportionate number of males in the 19-to-20 year category.

Appropriate pooling of the age groups in the younger and older ends of the age distribution (Table 7) still did not make the two groups truly representative.

Table 7 shows the revised distribution of age and the expected distribution derived by using percentages in the age groups of students in the graduating class of 1975.

Table 7

REVISED DISTRIBUTION OF RESPONDENTS BY AGE AND FREQUENCY

Age	Expected Frequency	Observed Frequency
19 - 24	262	252
25 - 29	80	93
30 - 34	43	41
35 - 39	27	34
40 plus	66	54

Chi Square = 6.6
df = 4

Hence, it would appear that even with pooling the sample would be representative of the graduating class only 20% of the time. While some error might be introduced into this study by such lack of representativeness of the sample to the graduating class it is believed that the correspondence between the two groups is close enough to provide valuable information.

A summary section was compiled to show the findings of the study in concise table form (see Appendix E). The following chapter includes the specific responses to each of the skills.

Chapter 5

ANALYSIS OF THE RESULTS

In this chapter each skill, included in the questionnaire, is analyzed by describing the differences between the means of the Occupational Graduates, the Non-occupational Graduates, and the Instructors. These skills were felt to be basic skills needed by an employee, by the employers, and by the personnel managers interviewed.

The first three are the basic communication skills of speaking, writing, and reading. These were felt to be important for job success. Creativity was interpreted rather broadly. It indicated imagination, innovativeness and an inventive quality. The skill concerning adaptability and flexibility was one that businessmen felt necessary for supervisory positions and was considered when giving promotions. To many owners of small business, this also showed the ability to do several jobs, moving from one to the other easily. Many of the skills overlapped. This was the case with creativity and leadership, and several of the other skills such as the communication that are needed for leadership. Self-discipline was another that fell into this category. Most employers felt that this was an important skill for all employees and especially for those in supervisory and management positions. Understanding about other people is very important, according to employers. With affirmative action and more employee mobility, this skill is needed for employees to work in harmony with one another.

Being able to look up things in the library or elsewhere was felt important because of the increased volume of information needed to operate even the smallest business. It has become a necessary skill for many occupations.

A summary of graduate and instructor responses showing their perceptions of the extent to which the 21 basic skills were learned and taught appears in Table 8. Each skill is then presented in table form with an analysis. Data for each course and basic skill is shown in Appendix E.

Table 8

SUMMARY OF RESPONSES OF GRADUATES AND INSTRUCTORS
OF FOUR CLASSES TO THE TWENTY-TWO BASIC SKILLS

Scale: 0 = never, 1 = infrequently, 2 = frequently, 3 = very frequently, 4 = almost always

	ENGLISH I						POLITICAL SCIENCE I						MATH 20						SPANISH I					
	Occupational Graduates		Non-Occupational Graduates		Instructors		Occupational Graduates		Non-Occupational Graduates		Instructors		Occupational Graduates		Non-Occupational Graduates		Instructors		Occupational Graduates		Non-Occupational Graduates		Instructors	
BASIC SKILL RATED	N*	M*	N	M	N	M	N	M	N	M	N	M	N	M	N	M	N	M	N	M	N	M	N	M
1. To speak to a group	157	1.7	273	1.6	17	1.6	114	.8	178	.8	6	1.5	47	.6	110	.5	16	.7	34	1.8	78	1.7	7	2.1
2. To write a report	150	2.9	272	3.0	17	3.7	117	1.1	177	1.3	6	2.7	47	.5	107	.3	16	.4	35	.5	79	.7	7	1.2
3. To read with accuracy and understanding	155	2.8	273	2.8	17	3.7	117	1.9	179	2.1	6	3.8	49	1.6	107	1.6	16	3.4	35	1.8	78	1.6	7	3.7
4. To be creative	157	2.5	273	2.6	17	2.7	115	.8	176	1.0	6	2.3	52	.7	107	.9	16	2.3	34	.9	79	1.2	7	2.1
5. To be adaptable and flexible in different situations	154	1.8	271	1.9	17	2.2	117	1.4	117	1.7	6	3.0	52	1.3	109	1.5	16	2.9	35	1.5	79	1.6	7	2.2
6. To use judgment in making decisions	156	1.7	271	1.7	17	2.8	117	1.5	178	1.7	6	3.7	52	1.6	109	1.9	16	2.8	35	.8	77	1.0	7	2.8
7. To be neat and systematic in the presentation of material	156	2.7	273	3.0	17	3.4	117	1.7	178	1.8	6	3.3	51	1.8	110	2.5	16	3.2	35	1.4	78	1.7	7	2.1

*N = Number of respondents
*M = Average of the mean ratings for the skill

Table 8 (continued)

Scale: 0 = never, 1 = infrequently, 2 = frequently, 3 = very frequently, 4 = almost always

BASIC SKILL RATED	ENGLISH I						POLITICAL SCIENCE I						MATH 20						SPANISH I					
	Occupational Graduates		Non-Occupational Graduates		Instructors		Occupational Graduates		Non-Occupational Graduates		Instructors		Occupational Graduates		Non-Occupational Graduates		Instructors		Occupational Graduates		Non-Occupational Graduates		Instructors	
	N*	M*	N	M	N	M	N	M	N	M	N	M	N	M	N	M	N	M	N	M	N	M	N	M
8. To use scientific laboratory procedures	156	.5	271	.6	17	.6	117	.4	178	.4	6	1.2	52	1.0	109	1.4	16	1.8	35	.2	76	.6	7	.9
9. To use computations (addition, mult.)	156	.4	272	.3	17	.4	117	.3	178	.4	6	.7	52	3.0	110	3.4	16	3.8	35	.3	77	.2	7	.1
10. To put things in categories (classifying)	157	2.0	271	1.9	17	2.8	117	1.4	178	1.7	6	2.5	51	2.1	110	2.4	16	2.4	35	1.0	76	1.5	7	3.1
11. To memorize	156	1.7	272	1.6	17	1.8	117	2.0	179	2.2	6	2.3	51	1.9	107	2.6	16	2.3	35	2.5	77	2.8	7	3.5
12. To draw something (illustration)	157	.4	272	.5	17	.5	117	.3	179	.5	6	.5	52	.9	108	1.3	16	2.3	35	.1	77	.2	7	0
13. To understanding about the environment	157	1.3	273	1.2	17	1.7	117	1.3	179	1.8	6	2.7	52	.4	109	.4	16	1.1	35	.8	78	.6	7	.3
14. To be a leader	156	1.2	272	1.0	17	1.5	117	1.3	178	1.4	6	1.3	51	.7	109	.7	16	.6	35	.9	77	.7	7	1.0

*N = Number of respondents
*M = Average of the mean ratings for the skill

Table 8 (continued)

Scale: 0 = never, 1 = **infrequently**, 2 = frequently, 3 = very frequently, 4 = **almost** always

BASIC SKILL RATED	ENGLISH I						POLITICAL SCIENCE I						MATH 20						SPANISH I					
	Occupational Graduates		Non-Occupational Graduates		Instructors		Occupational Graduates		Non-Occupational Graduates		Instructors		Occupational Graduates		Non-Occupational Graduates		Instructors		Occupational Graduates		Non-Occupational Graduates		Instructors	
	N*	M*	N	M	N	M	N	M	N	M	N	M	N	M	N	M	N	M	N	M	N	M	N	M
15. To understand about one's self (self-understanding)	156	1.7	271	1.6	17	2.8	117	1.1	177	1.3	6	2.5	51	.6	110	.7	16	1.2	34	.8	77	.8	7	1.5
16. To plan work	155	2.3	272	2.4	17	3.7	117	1.6	178	1.7	6	3.0	51	1.6	110	2.1	16	3.0	35	1.6	77	1.8	7	2.1
17. To use self-discipline in tasks or meeting a deadline	156	2.4	271	2.7	17	3.5	117	1.8	178	2.3	6	3.8	52	1.7	110	2.3	16	3.2	35	1.8	77	2.2	7	2.6
18. To practice using shorthand	157	.3	272	.2	17	.2	117	.4	178	.3	6	.3	52	.2	109	.1	16	.4	34	.4	77	.1	7	0
19. To understand about other people	157	1.9	272	1.8	17	2.9	117	2.0	177	2.2	6	3.5	50	.6	106	.5	16	.7	35	1.8	77	1.7	7	2.9
20. To practice using typing skills	155	1.3	273	1.5	17	1.1	117	.8	178	.8	6	1.5	50	.2	109	.1	16	0	34	.7	77	.3	7	.1
21. To look up information in the library	157	2.2	273	2.4	17	3.2	117	1.5	179	1.8	6	2.8	50	.3	109	.5	16	.9	35	.8	77	.7	7	1.0
22. To enhance technical skills for your job	157	1.6	270	1.3			114	.8	177	.7			51	2.2	107	1.7			35	1.5	75	.9		

*N = Number of respondents
*M = Average of the mean ratings for the skill

Mean Scores of Skill Number One
"To Speak to a Group"

	Occupational Graduates	Non-occupational Graduates	Instructors
English I	1.7	1.6	1.6
Political Science I	.8	.8	1.5
Mathematics 20	.6	.5	.7
Spanish I	1.8	1.7	2.1

0 = never, 1 = infrequently, 2 = frequently, 3 = very frequently,
4 = almost always

Skill number one on the questionnaire, "To speak to a group," was perceived as being learned "infrequently," and more toward the "frequently" rating by the instructors in all but Spanish I (Tables 9-14, Figures I-IV). A sizeable discrepancy can be noted between how the graduates and the instructors perceived Political Science I.

Mean Scores of Skill Number Two

"To Write a Report"

	Occupational Graduates	Non-occupational Graduates	Instructors
English I	2.9	3.0	3.0
Political Science I	1.1	1.3	2.7
Mathematics 20	.5	.3	.4
Spanish I	.5	.7	1.2

0 = never, 1 = infrequently, 2 = frequently, 3 = very frequently,
4 = almost always

The highest rating in skill number two, "To write a report," was in English I, but the rating dropped drastically in the other subjects (Tables 9-14, Figures I-IV). The discrepancy between graduates and instructors in Political Science I and Spanish I should be noted.

Mean Scores of Skill Number Three
"To Read with Accuracy and Understanding"

	Occupational Graduates	Non-occupational Graduates	Instructors
English I	2.8	2.8	3.7
Political Science I	1.9	2.1	3.8
Mathematics 20	1.6	1.6	3.4
Spanish I	1.8	1.7	2.1

0 = never, 1 = infrequently, 2 = frequently, 3 = very frequently, 4 = almost always

Skill number three, "To read with accuracy and understanding," was rated relatively high in all the subjects (Tables 9-14, Figures I-IV). The large discrepancies between graduates and instructors in English I, Political Science I and Mathematics 20 should be noted. The instructors obviously felt that this skill was taught "very frequently," but the graduates did not share their perceptions.

Mean Scores of Skill Number Four

"To Be Creative"

	Occupational Graduates	Non-occupational Graduates	Instructors
English I	2.5	2.6	2.7
Political Science I	.8	1.0	2.3
Mathematics 20	.7	.9	2.3
Spanish I	.9	1.2	2.1

0 = never, 1 = infrequently, 2 = frequently, 3 = very frequently, 4 = almost always

It should be noted that in skill number four, "To be creative," a large discrepancy exists between the perceptions of graduates and of instructors in Political Science I, Mathematics 20, and Spanish I (Tables 9-14, Figures I-IV).

Mean Scores of Skill Number Five

"To Be Adaptable and Flexible in Different Situations"

	Occupational Graduates	Non-occupational Graduates	Instructors
English I	1.8	1.9	2.2
Political Science I	1.4	1.7	3.0
Mathematics 20	1.3	1.5	2.9
Spanish I	1.5	1.6	2.2

0 = never, 1 = infrequently, 2 = frequently, 3 = very frequently, 4 = almost always

Skill number five, "To be adaptable and flexible in different situations," varied in the ratings between graduates and instructors (Tables 9-14, Figures I-IV). The discrepancy is quite large between the ratings of Political Science I and Mathematics 20.

Mean Scores of Skill Number Six
"To Use Judgment in Making Decisions"

	Occupational Graduates	Non-occupational Graduates	Instructors
English I	1.7	1.7	2.8
Political Science I	1.5	1.7	3.7
Mathematics 20	1.6	1.9	2.8
Spanish I	.8	1.0	2.8

0 = never, 1 = infrequently, 2 = frequently, 3 = very frequently,
4 = almost always

Skill number six, "To use judgment in making decisions," was perceived quite differently by graduates and instructors (Tables 9-14, Figures I-IV). There is a large discrepancy between how much graduates perceived they learned and what instructors perceived they taught. It seems that the instructors felt they provided more opportunities for the students to learn this skill than the students felt they had learned.

Mean Scores of Skill Number Seven

"To Be Neat and Systematic in the Presentation of Material"

	Occupational Graduates	Non-occupational Graduates	Instructors
English I	2.7	3.0	3.4
Political Science I	1.7	1.8	3.3
Mathematics 20	1.8	2.5	3.2
Spanish I	1.4	1.7	2.1

0 = never, 1 = infrequently, 2 = frequently, 3 = very frequently,
4 = almost always

Skill number seven, "To be neat and systematic in the presentation of material," was again perceived differently by students and by instructors, and the difference was highest in English I (Tables 9-14, Figures I-IV). English I had the highest mean score, which showed that the skill was perceived as "very frequently" by the instructors. It was interesting to note that Mathematics 20 did not rate nearly as high in the graduate evaluation, although instructors felt that they taught this skill "very frequently."

Mean Scores of Skill Number Eight
"To Use Scientific Laboratory Procedures"

	Occupational Graduates	Non-occupational Graduates	Instructors
English I	.5	.6	.6
Political Science I	.4	.4	1.2
Mathematics 20	1.0	1.4	1.8
Spanish I	.2	.6	.9

0 = never, 1 = infrequently, 2 = frequently, 3 = very frequently,
4 = almost always

Skill number eight, "To use scientific laboratory procedures," was rated very low by the graduates and instructors in all classes (Tables 9-14, Figures I-IV). This is to be expected considering the nature of the subjects. Also, many students may not know what scientific laboratory procedures are. They would perhaps need to have had a laboratory science course to understand this question.

Mean Scores of Skill Number Nine

"To Use Computations
(Addition, Multiplication, etc)"

	Occupational Graduates	Non-occupational Graduates	Instructors
English I	.4	.3	.4
Political Science I	.3	.4	.7
Mathematics 20	3.0	3.4	3.8
Spanish I	.3	.2	.1

0 = never, 1 = infrequently, 2 = frequently, 3 = very frequently,
4 = almost always

Skill number nine, "To use computations (addition, multiplication, etc)," was understandably low in everything but Mathematics 20 (Tables 9-14, Figures I-IV). It is somewhat surprising that Mathematics 20 did not rate in the 4 ("almost always") category, but a certain amount of theory is in the course content. It is also noteworthy that some computation skills are perceived as being taught in other classes.

Mean Scores of Skill Number Ten
"To Put Things in Categories (Classifying)"

	Occupational Graduates	Non-occupational Graduates	Instructors
English I	2.0	1.9	2.8
Political Science I	1.4	1.7	2.5
Mathematics 20	2.1	2.4	2.4
Spanish I	1.0	1.5	3.1

0 = never, 1 = infrequently, 2 = frequently, 3 = very frequently
4 = almost always

Skill number ten, "To put things in categories (classifying)," was rated near the middle ranges with the exception of Spanish I (Tables 9-14, Figures I-IV). The instructors' perception of what was learned differed greatly in Spanish I on this skill. This difference may have been due to a different interpretation of the work 'category.'

Mean Scores of Skill Number Eleven
"To Memorize"

	Occupational Graduates	Non-occupational Graduates	Instructors
English I	1.7	1.6	1.8
Political Science I	2.0	2.2	2.3
Mathematics 20	1.9	2.6	2.3
Spanish I	2.5	2.8	3.5

0 = never, 1 = infrequently, 2 = frequently, 3 = very frequently,
4 = almost always

Skill number eleven, "To memorize," ranked near the "frequently" to "very frequently" range (Tables 9-14, Figures I-IV). The only great range of disagreement occurred in Spanish I, where the instructor perceived that the skill was taught more than the students perceived it was learned.

Mean Scores of Skill Number Twelve
"To Draw Something"

	Occupational Graduates	Non-occupational Graduates	Instructors
English I	.4	.5	.5
Political Science I	.3	.5	.5
Mathematics 20	.9	1.3	2.3
Spanish I	.1	.2	0

0 = never, 1 = infrequently, 2 = frequently, 3 = very frequently,
4 = almost always

Skill number twelve, "To draw something (illustration)," was very low in the mean rating (Tables 9-14, Figures I-IV). In Mathematics 20 (Intermediate Algebra) the instructors felt that perhaps the drawings of situations for computation or graphs would qualify for this skill whereas students did not think so.

Mean Scores of Skill Number Thirteen
"To Understand About the Environment"

	Occupational Graduates	Non-occupational Graduates	Instructors
English I	1.3	1.2	1.7
Political Science I	1.3	1.8	2.1
Mathematics 20	.4	.4	1.1
Spanish I	.8	.6	.[illegible]

0 = never, 1 = infrequently, 2 = frequently, 3 = very frequently,
4 = almost always

Skill number thirteen, "To understand about the environment," ranked from below "infrequently" to near the "frequently" range. English I and Political Science I were the highest in the rankings (Table 1-14, Figure I-IV). The Mathematics 20 instructors felt they taught more about the environment than the graduates perceived. In Spanish I, the graduates felt they learned slightly more than the instructors perceived that they taught.

Mean Scores of Skill Number Fourteen
"To Be a Leader"

	Occupational Graduates	Non-occupational Graduates	Instructors
English I	1.2	1.0	1.5
Political Science I	1.3	1.4	1.3
Mathematics 20	.7	.7	.6
Spanish I	.9	.7	1.0

0 = never, 1 = infrequently, 2 = frequently, 3 = very frequently, 4 = almost always

Skill number fourteen, "To be a leader," did not rate particularly high. The skill ranged from below the "infrequently" rating to just above it (Tables 1-14, Figures I-IV).

Mean Scores of Skill Number Fifteen

"To Understand About One's
Self (Self-understanding)

	Occupational Graduates	Non-occupational Graduates	Instructors
English I	1.7	1.6	2.8
Political Science I	1.1	1.3	2.5
Mathematics 20	.6	.7	1.2
Spanish I	.8	.8	1.5

0 = never, 1 = infrequently, 2 = frequently, 3 = very frequently,
4 = almost always

Skill number fifteen, "To understand about one's self (self-understanding)," again was around the "infrequently" range (Tables 9-14, Figures I-IV). As is shown above, the English I and Political Science I instructors felt quite strongly that they offered more opportunity to learn this skill than the graduates perceived they learned.

Mean Scores of Skill Number Sixteen
"To Plan Work"

	Occupational Graduates	Non-occupational Graduates	Instructors
English I	2.3	2.4	3.4
Political Science I	1.6	1.7	3.0
Mathematics 20	1.6	2.1	3.0
Spanish I	1.6	1.8	2.1

0 = never, 1 = infrequently, 2 = frequently, 3 = very frequently,
4 = almost always

Skill number sixteen, "To plan work," it seems would have rated high in any class, since deadlines for homework assignments, presentations, reports, etc. are a part of any class. Oddly enough, this skill ranked highest in English I ("frequently" range) with the graduates, while the instructors felt this skill was taught to a much greater extent than shown by the graduates' ratings. (Tables 9-14, Figures I-IV).

Mean Scores of Skill Number Seventeen

"To Use Self-discipline in Tasks or Meeting a Deadline"

	Occupational Graduates	Non-occupational Graduates	Instructors
English I	2.4	2.7	3.5
Political Science I	1.8	2.3	3.8
Mathematics 20	1.7	2.3	3.2
Spanish I	1.8	2.2	2.6

0 = never, 1 = infrequently, 2 = frequently, 3 = very frequently,
4 = almost always

Skill number seventeen, "To use self-discipline in tasks or meeting a deadline," was very similar to skill number sixteen, "To plan work" (Tables 9-14, Figures I-IV).

Mean Scores of Skill Number Eighteen
"To Practice Using Shorthand"

	Occupational Graduates	Non-occupational Graduates	Instructors
English I	.3	.2	.2
Political Science I	.4	.3	.3
Mathematics 20	.2	.1	.4
Spanish I	.4	.1	0

0 = never, 1 = infrequently, 2 = frequently, 3 = very frequently,
4 = almost always

Skill number eighteen, "To practice using shorthand," was suggested as a technical skill that could be practiced in the classroom (Tables 9-14, Figure I-IV). Discussion of the ratings of skill number eighteen was omitted since not all students had this skil[illegible] it could not be acquired in the course. This question could not h[illegible] been answered by all of the students.

Mean Scores of Skill Number Nineteen
"To Understand About Other People"

	Occupational Graduates	Non-occupational Graduates	Instructors
English I	1.9	1.8	2.9
Political Science I	2.0	2.2	3.5
Mathematics 20	.6	.5	.7
Spanish I	1.8	1.7	2.9

0 = never, 1 = infrequently, 2 = frequently, 3 = very frequently,
4 = almost always

Skill number nineteen, "To understand about other people," rated in the "frequently" range in everything but Mathematics 20, which was understandable (Tables 9-14, Figures I-IV).

Mean Scores of Skill Number Twenty
"To Practice Using Typing Skills"

	Occuaptional Graduates	Non-occupational Graduates	Instructors
English I	1.3	1.5	1.1
Political Science I	.8	.8	1.5
Mathematics 20	.2	.1	0
Spanish I	.7	.3	.1

0 = never, 1 = infrequently, 2 = frequently, 3 = very frequently,
4 = almost always

Skill number twenty, "To practice using typing skills," like number eighteen, is a technical skill. Again, this is a skill that eliminates many students, but it is also one that supports communication. English I was rated highest. Ratings of graduates and instructors were fairly consistent (Tables 9-14, Figures I-IV).

Mean Scores of Skill Number Twenty-One
"To Look Up Information in the Library"

	Occupational Graduates	Non-occupational Graduates	Instructors
English I	2.2	2.4	3.2
Political Science I	1.5	1.8	2.8
Mathematics I	.3	.5	.9
Spanish I	.8	.7	1.0

0 = never, 1 = infrequently, 2 = frequently, 3 = very frequently,
4 = almost always

Skill number twenty one, "To look up information in the library," was pointed toward the ability to do research. It has become increasingly important. As might be expected, this skill was rated highest in English I and Political Science I (Tables 9-14, Figues I-IV). It appears that a minimal amount of this ability is expected in Mathematics 20 and Spanish I.

Mean Scores of Item Number Twenty-Two
"To Enhance Technical Skills for Your Job"

	Occupational Graduates	Non-occupational Graduates
English I	1.6	1.3
Political Science I	.8	.7
Mathematics 20	2.2	1.7
Spanish I	1.5	.9

0 = never, 1 = infrequently, 2 = frequently, 3 = very frequently,
4 = almost always

Item number twenty-two, "To enhance technical skills for your job," was asked only of the graduates and only pertaining to the individuals perception of the class helping him or her in a technical way. The following were the results (Tables 9-14, Figures I-IV). Mathematics 20 was rated in the "frequently" range and English I above the "infrequently" rating. It is surprising that both of these were not rated higher. English is needed as a communication skill and Mathematics is needed in almost every occupation.

Instructors were asked for additional information on their homework assignments. They were: Do you ask for typed papers? ask for written narratives? ask for creative work? provide for evaluation of accuracy in work? provide opportunity for students to make judgement? provide for a mathematical computation experience? provide for a memorizing experience? provide for organizing projects or tasks? provide a chance to work with others? use research methods? They were also asked to mention for other experiences along those lines and to explain how they taught the skills mentioned.

This part of the questionnaire was not an important part of the study, but was only to give some insight into the methodologies used in teaching skills. Only about half of the instructors answered this section and many of those incompletely. Most of those who responded, included the check list in homework assignments. Several gave specific instances of their methodologies used to teach the skills to students. Those methods and others from instructors personally interviewed are included in the recommendation section in Chapter 6.

CHAPTER 6

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The study undertook to determine the extent to which twenty-one practical skills were perceived as learned in four courses taken by two groups of 1975 graduates at LAVC. The sample studied included "four-year transfer" (non-occupational) majors, "two-year occupational" majors, and instructors responsible for teaching these courses during the time covered by the study. The study was limited to four courses, English I, Political Science I, Mathematics 20, and Spanish I (Appendix A).

Sixty-three point three percent (190) of the occupational majors 63.6 percent (286) of the non-occupational group, and 70 percent (48) of the instructors responded.

In general, both student groups tended to agree closely on the degree of teaching that took place in each skill in each subject (Figures I-IV). The instructors' responses showed that they perceived that the various skills were presented more frequently and that the opportunity to learn was greater than the students perceived.

The students felt that in English I they had more opportunity to learn these skills. Political Science I was second in the responses, Mathematics 20 was a close third, and Spanish I was fourth. This ranking was not only combined by also was on an individual basis with the two groups of graduates.

Conclusions

Educationally, in the past the teaching emphasis has been placed on subject matter, an accumulat[illegible] of knowledge. With present day technology and computerization, together with what is projected for the future, an accumulation of facts is already at our fingertips. It is important to have the skills to use the vast knowledge that is available to us. Communication skills are becoming more and more important in our daily occupational life. Writing, reading with understanding, and interacting with fellow workers are among the skills necessary for every employee.

1. Many practical skills are taught in each of the four courses surveyed. However, generally the graduates have not perceived the same as the instructors as to what has been taught. Instructors feel that there are many more practical skills being taught than the graduates perceive they have learned.

2. Table 8 shows that graduates perceived all of the skills taught in each of the four classes to some degree. Instructors felt that each of the skills were taught to some degree with the exception of the Spanish I instructors who felt that students were not given an opportunity to experience skill number 12 (To draw something) and skill number 20 (To practice using typing skills).

3. It would appear that these twenty-one skills can be taught or emphasized in all classes.

4. The data indicated that instructors perceived that they taught almost double the number of skills as the graduates perceived they learned. Figure I shows graphically the differences in agreement between graduates and instructors in English I. Instructors rated twelve skills at or above the "frequently" rating while graduates perceived only six of those skills to be at or above the "frequently" rating.

Figure II depicts the differences in perceptions in Political Science I. Fourteen skills were perceived by instructors as being taught at or above the "frequently" rating while only four were perceived by the graduates as being at or above the "frequently" rating..

Mathematics 20 ratings are shown in Figure III. Eleven skills were perceived by instructors as being at or above the "frequently" rating. Graduates, on the other hand, only perceived six skills as being learned in the course.

Spanish I, shown in Figure IV, shows instructors rating eleven skills at or above "frequently".

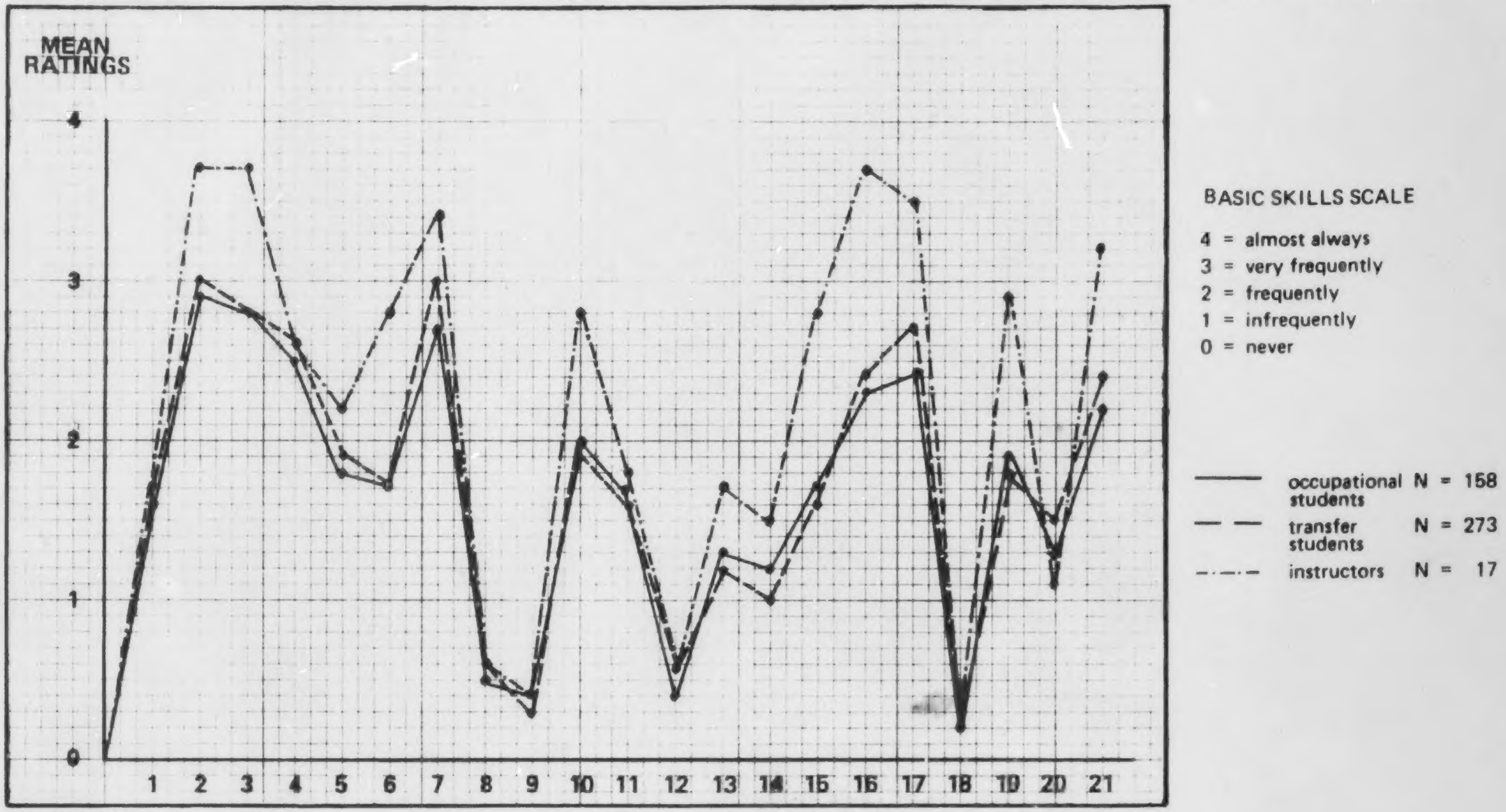
5. Of the twenty-one skills employers felt were important to occupational success, it was shown that ten of these skills received a rating of below "frequently" by all respondents in all four courses. There were:

To speak to a group.

To be adaptable and flexible in different situations

Figure I

Mean Ratings given to 21 Basic Skills learned in English I classes by occupational students, non-occupational students and instructors.

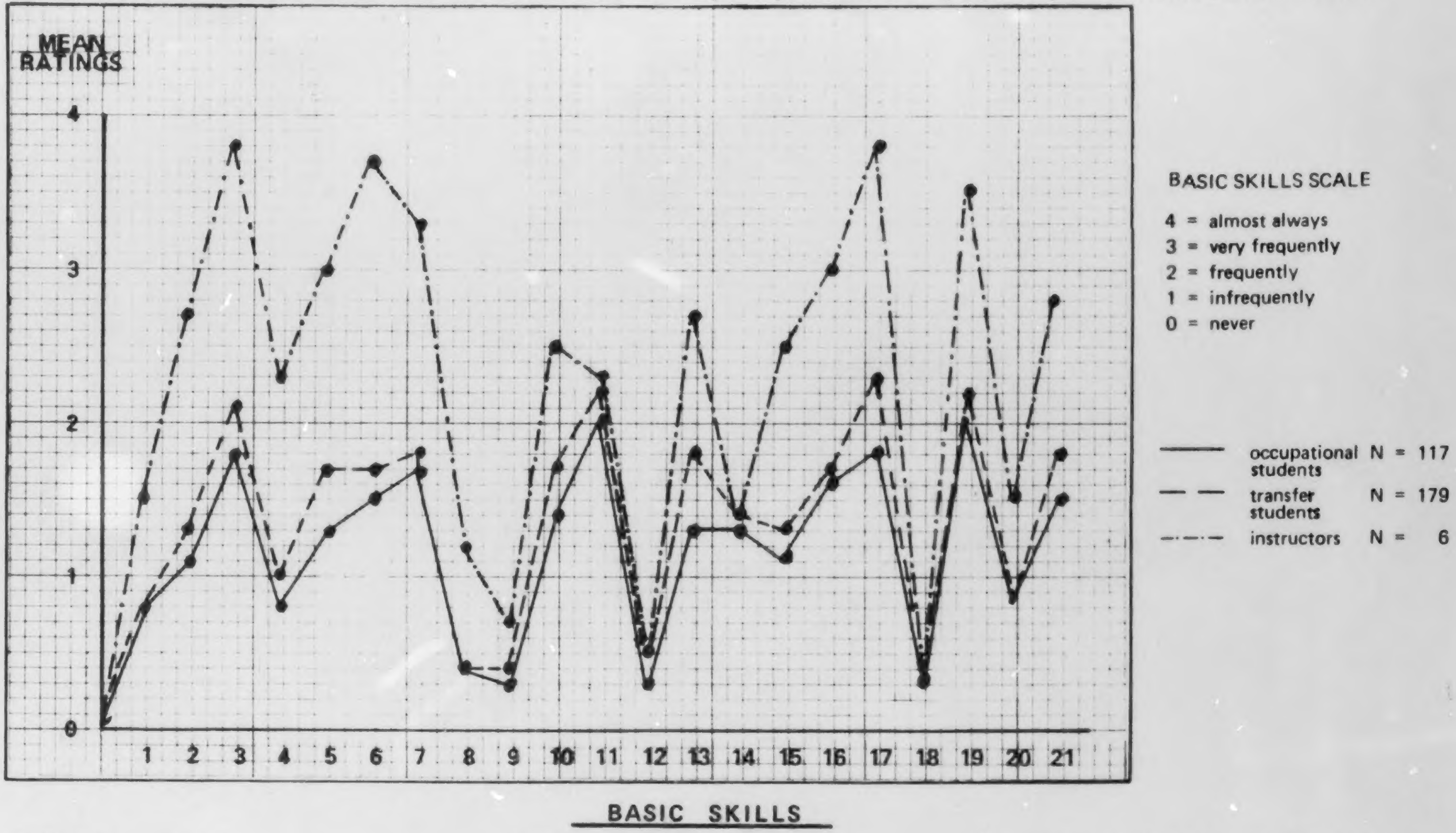


BASIC SKILLS

1. To speak to a group
2. To write a report
3. To read with accuracy and understanding
4. To be creative
5. To be adaptable and flexible in different situations
6. To use judgment in making decisions
7. To be neat and systematic in the presentation of material
8. To use scientific laboratory procedures
9. To use computations (addition, multiplication, etc.)
10. To put things in categories (classifying)
11. To memorize
12. To draw something (illustration)
13. To understand about the environment
14. To be a leader
15. To understand about one's self (self-understanding)
16. To plan work
17. To use self-discipline in tasks or meeting a deadline
18. To practice using shorthand
19. To understand about other people
20. To practice using typing skills
21. To look up information in the library

Figure II

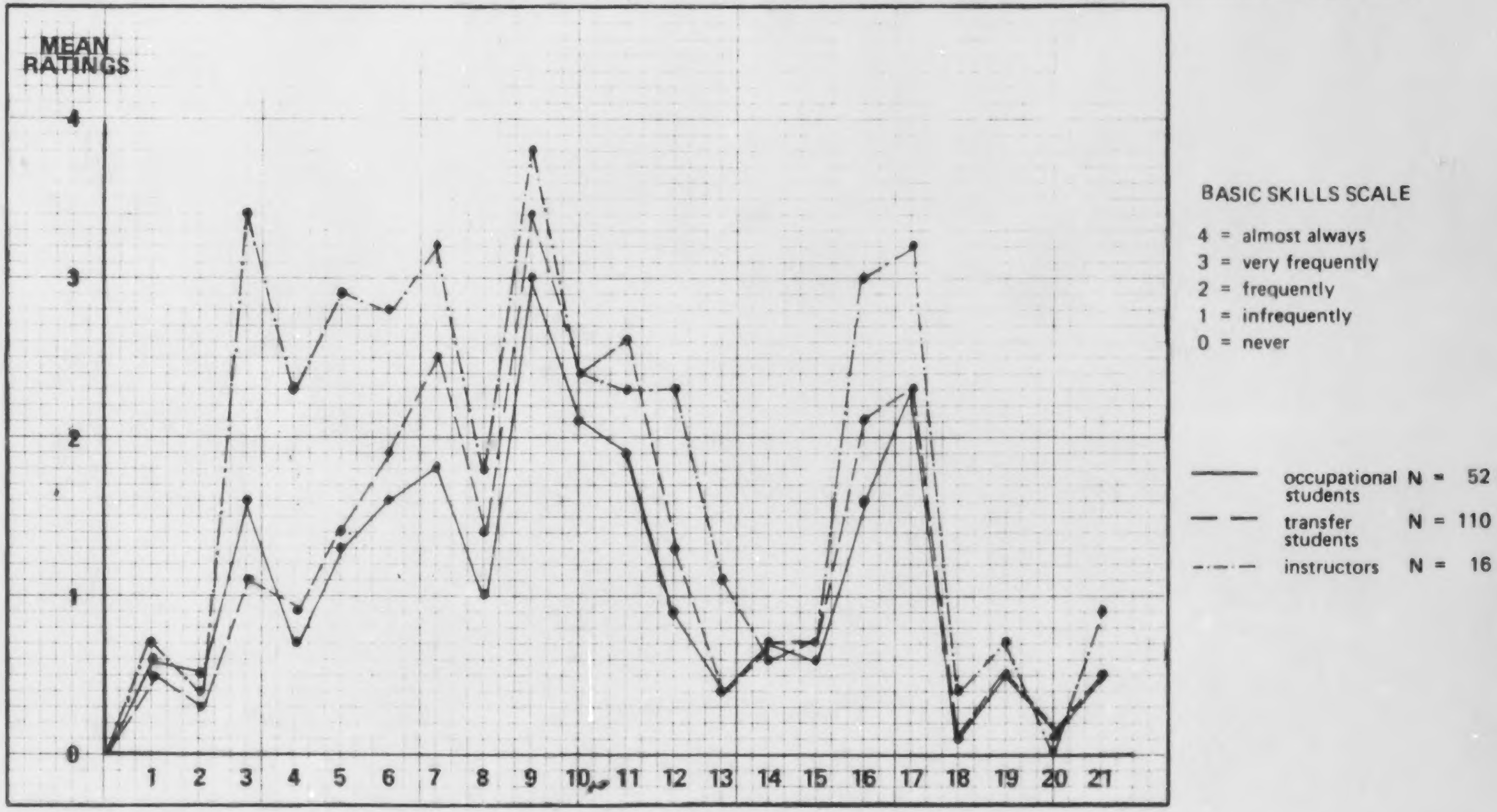
Mean Ratings given 21 Basic Skills learned in Political Science I classes by occupational students, non-occupational students and instructors.



1. To speak to a group
2. To write a report
3. To read with accuracy and understanding
4. To be creative
5. To be adaptable and flexible in different situations
6. To use judgment in making decisions
7. To be neat and systematic in the presentation of material
8. To use scientific laboratory procedures
9. To use computations (addition, multiplication, etc.)
10. To put things in categories (classifying)
11. To memorize
12. To draw something (illustration)
13. To understand about the environment
14. To be a leader
15. To understand about one's self (self-understanding)
16. To plan work
17. To use self-discipline in tasks or meeting a deadline
18. To practice using shorthand
19. To understand about other people
20. To practice using typing skills
21. To look up information in the library

Figure III

Mean Ratings given 21 Basic Skills learned in Mathematics 20 classes by occupational students, non-occupational students and instructors.

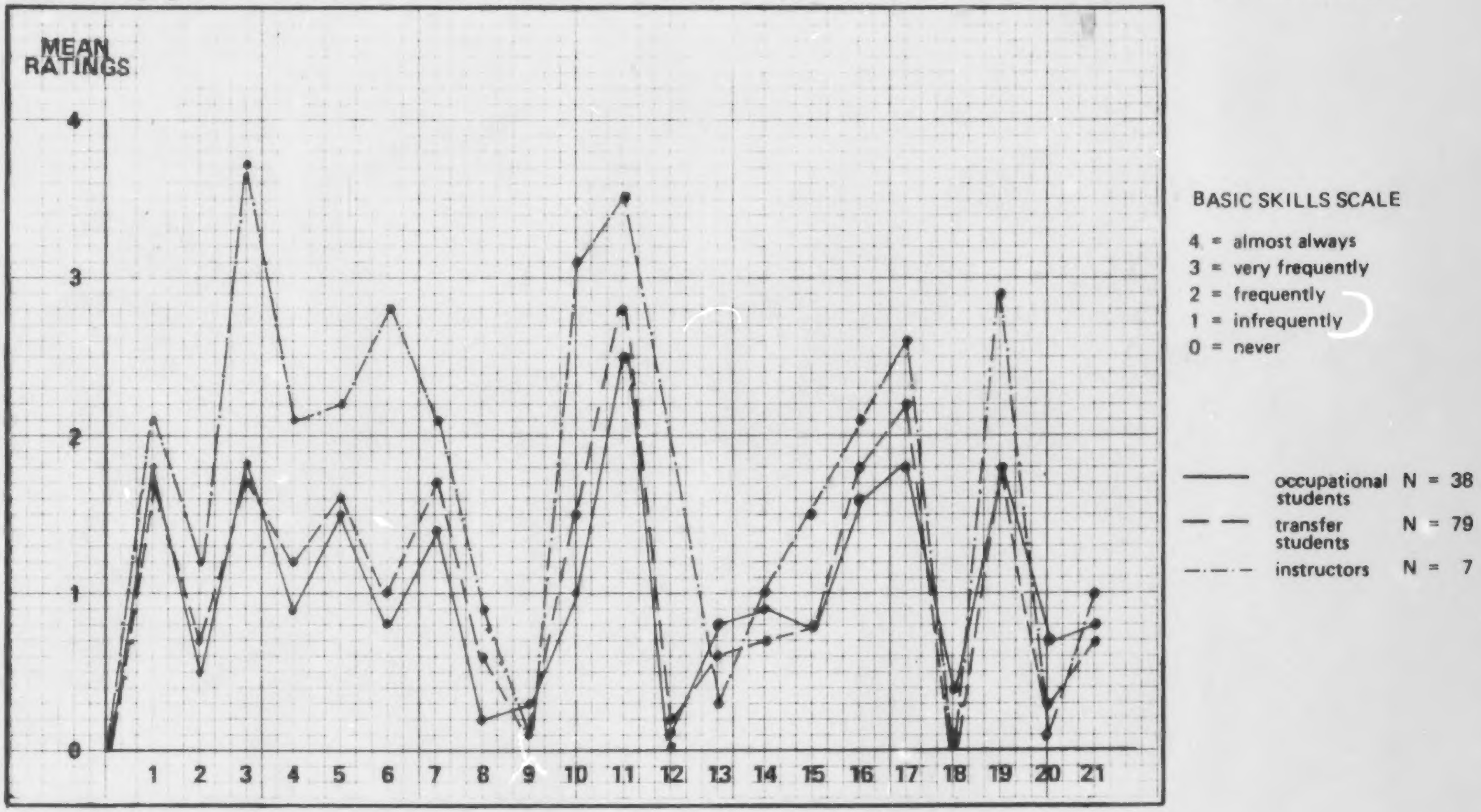


BASIC SKILLS

1. To speak to a group
2. To write a report
3. To read with accuracy and understanding
4. To be creative
5. To be adaptable and flexible in different situations
6. To use judgment in making decisions
7. To be neat and systematic in the presentation of material
8. To use scientific laboratory procedures
9. To use computations (addition, multiplication, etc.)
10. To put things in categories (classifying)
11. To memorize
12. To draw something (illustration)
13. To understand about the environment
14. To be a leader .
15. To understand about one's self (self-understanding)
16. To plan work
17. To use self-discipline in tasks or meeting a deadline
18. To practice using shorthand
19. To understand about other people
20. To practice using typing skills
21. To look up information in the library

Figure IV

Mean Ratings given 21 Basic Skills learned in Spanish I classes by occupational students, non-occupational students and instructors.



BASIC SKILLS

1. To speak to a group
2. To write a report
3. To read with accuracy and understanding
4. To be creative
5. To be adaptable and flexible in different situations
6. To use judgment in making decisions
7. To be neat and systematic in the presentation of material
8. To use scientific laboratory procedures
9. To use computations (addition, multiplication, etc.)
10. To put things in categories (classifying)
11. To memorize
12. To draw something (illustration)
13. To understand about the environment
14. To be a leader
15. To understand about one's self (self-understanding)
16. To plan work
17. To use self-discipline in tasks or meeting a deadline
18. To practice using shorthand
19. To understand about other people
20. To practice using typing skills
21. To look up information in the library

To use judgment in making decisions.

To use scientific laboratory procedures.

To draw something (illustration).

To understand about the environment.

To be a leader.

To understand one's self (self-understanding).

To practice using shorthand.

To practice using typing skills.

6. Instructors perceive that they teach many more skills than the graduates perceive they learn. It is probably that the students have not been told what skills are being taught or experienced in the classroom. It is also possible that these skills have not been reinforced in the graduates' occupation and therefore forgotten.

7. Both the non-occupational and occupational graduates perceived the degree of learning of each skill in each area similarly. There were only three exceptions of any significant consequence (see Figures III and IV).

8. No individual skill received either a "1" or a "2" rating ("frequently" across the board in all classes.

9. English I ranked highest in teaching the skills followed by Political Science I, Mathematics 20 and English I.

Recommendations

Based on the summary and conclusions of this study, the following twelve recommendations are made:

1. Seminars should be given for instructors to point out some of the applications of the subject matter, the skills that were

These skills should be brought to the attention of the instructor so that either they can be emphasized to a greater extent or the students can be told what skill they are learning.

In two or more sources the following skills received an "infrequently" of below rating by students:

to speak to a group
to write a report
to be creative
to use scientific laboratory procedures
to use computations (addition, multiplication, etc.)
to draw something (illustration)
to understand about the environment
to be a leader
to understand about one's self (self-understanding)
to practice using shorthand
to practice using typing skills
to look up information in the library

These skills are considered to be important by employers and should be brought to the attention of the instructors .

c. The following represent some approaches that can be used, in the classroom by the instructor, to implement some of the skills listed on the questionnaire (Appendix C). Some of the skills discussed are easily implemented, while others are less obvious and, of the skills listed on the questionnaire, cannot be taught in the course.

taught by the instructors much higher than the students perceived learning them and for ways instructors to implement the teaching of these skills.

a. Some practical applications of the subject matter can be seen in the guide in Appendix D.

b. There were 16 skills where the instructors perceived the skills were taught to a much greater degree than the students perceived they were learned. These skills were:

to write a report

to read with accuracy and understanding

to be creative

to be adaptable and flexible in different situations

to use judgment in making decisions

to be neat and systematic in the presentation of material

to use scientific laboratory procedures

to put things into categories (classify)

to draw something (illustration)

to understand about the environment

to understand about one's self (self-understanding)

to plan work

to use self-discipline in tasks or meeting a deadline

to practice using shorthand

to understand about other people

to look up information in the library.

Mathematics 20

"To speak to a group" can be taught through having students explain the solution to problems, especially word problems, at the blackboard and to the other students. This experience also promotes leadership qualities ("To be a leader") and of course promotes the skill "To use computations."

"To be creative" can be promoted in Mathematics 20 through having students explain different ways of arriving at a solution to a problem.

"To be adaptable and flexible in different situations" can be taught by a change of format in a testing situation. This would give the students an important situation to which they would have to adopt.

"To understand one's self" is taught each time a mathematics instructor gives a diagnostic test at the beginning of a semester. This type of experience gives the students insight into their strengths and weaknesses in reasoning powers.

"To be a leader" can be developed through special problems given to volunteers to explain the next day. This experience develops initiative, which is a part of leadership. Another approach would be to ask for volunteers to do research on a problem in the library and to report back on different approaches to a solution.

"To put things in categories" is a basic skill taught in mathematics. This skill is taught through the identification of concepts and terms usually at the beginning of the semester. Learning the definitions of integers, rational numbers, irrational numbers, etc. is classification.

Spanish I

"To understand about other people" is a basic function of Spanish I. Languages express differences of meaning that show the differences in attitudes toward life between cultures. Students must learn about these differences in order to understand the language. This can be demonstrated through the use of the term "usted" (you) in respectfully addressing strangers while one would use term "tu" for friends. While we have only one term for "you," the Spanish have two in order to deal with different people.

"To be a leader" can be developed through individual questions in the language to a student. This develops assertiveness, which is a quality of leadership.

"To be creative is developed by using the language in a role playing situation and encouraging the students to use what they know.

"To be adaptable and flexible in different situations" is taught through the very use of the language. The different word orders of a foreign language teaches adaptability and flexibility in various situations.

"To use scientific laboratory procedures" is taught through the use of the language laboratory where students progress from the simple to the difficult in the language.

"To put things in categories" is taught by pointing out the similarities and differences between English and Spanish, how words can be used as nouns, adjectives, etc.

"To memorize" is taught not by individual words but by word groups and expressions.

English I

"To be creative can be taught by encouraging innovative and unusual approaches in writing. Writing with clarity encourages a creative approach.

"To be adaptable and flexible in different situations" is promoted through impromptu papers.

"Judgment in decision making" is taught in English I through book evaluations. The student must consider the purpose of the book in making the evaluation. Opinion papers are another means of teaching this skill. The student must base the paper on facts and must consider the other side of the issue.

"Using scientific laboratory procedures" is taught through the assignment "describe an empty room." Here the students must describe everything in exact detail and find the right word as the descriptor. This is very close to the scientific approach.

"Using illustration" in English I is more difficult. Verbal illustration is quite common; but, graphs and charts are generally included in the required research paper and qualify as illustration.

The skill of "putting things into categories" is taught in a classification paper. In this paper something is categorized. The function of each unit is described as is its relationship to the total unit.

"Understanding one's self" is furthered through a paper "Why do you think the way you do?" This type of assignment causes the students to be introspective and learn more about themselves.

Political Science I

"Reading with accuracy and understanding" is taught through supplementary material that is current and topical. New laws, court decisions, etc. and their interpretations promote this skill.

"Adaptability and flexibility" as a skill is experienced through situational debates and through questioning. The student must be able to think quickly and logically in the situation.

"Neat and systematic presentation" is taught through reports both oral and written.

"An understanding of the environment" is taught through a study of the laws and governmental programs concerning environment. This is very topical at the present time.

"Self-understanding" is experienced through the exploration of one's own attitudes during the course. Debating, reading, and discussing bring about such learning.

"Understanding other people" is taught through the study of international relations. Learning about regional attitudes and the problems that other people face and how they react promotes this skill.

2. Employers and personnel managers should be used in the seminars to point out the skills needed in business and industry and how they apply. Appendix D points out various such occupational areas.

3. Trips to business and industry should be arranged for instructors for firsthand observation of the skills being applied.

4. Instructors should point out to the students the applications of both the subject matter and the skills involved in completing classroom assignments.

5. Counselors, especially vocational counselors, should be made aware of the practical skills taught in the general education courses.

6. Instructors of other courses should examine their course lesson plans to see if more practical skills can be included in the course content.

If future studies are to be considered, the following topics are recommended:

7. In what other general education classes are skills perceived taught by instructors and learned by students?

8. Do those unemployed (but seeking employment) see less skill

in college than those employed?

9. What aspects of a class help students the most in their occupational endeavors?

10. What parts of the course content are perceived to be most valuable by employers?

11. How many community college graduates are working in their major field?

12. How should we teach these skills in the various courses?

Several new career counseling plans are being studied at Los Angeles Valley College. These plans will not only involve the student body but the community as well. It is expected that many of these recommendations will become an integral part of the implementation of these plans. Since this study is also a pilot study for the California Community Colleges, Chancellors' Office, the findings and recommendations should be of value to other community colleges throughout the state.

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APPENDIX A

COURSE DESCRIPTIONS FOR ENGLISH I, MATHEMATICS 20, POLITICAL SCIENCE I, AND SPANISH I

ENGLISH I

READING AND COMPOSITION

Prerequisites: Satisfactory score on placement test or completion of English 28 with grade of C or better.

Lecture, 3 hours.

Designed to develop writing and reading skills through intensive practice in the writing of essays and the critical evaluation and discussion of non-fictional materials. Clarity of thought and organization are emphasized in student writing. Prerequisite to such emphasis is an understanding of the elements of punctuation, sentence structure, and grammar. Acceptable for credit: UCLA, English 1A; CSUN, English 155.

MATHEMATICS 20

INTERMEDIATE ALGEBRA

Prerequisite: One year of high school algebra or Mathematics 31, with grade of C or better.
Recommended: One year of high school geometry or Mathematics 32.

Lecture, 5 hours.

Covers properties of real numbers, review of fundamental operations with polynomials and fractions, inequalities, negative and fractional exponents, quadratic equations and inequalities, functions and graphs, simultaneous systems in two and three variables, determinants, second degree systems, sequence and series, exponential and logarithmic functions.

POLITICAL SCIENCE I

THE GOVERNMENT OF THE UNITED STATES

Lecture, 3 hours.

Meets the requirement for U.S. Constitution, state, and local government.

The principles and problems of government with special attention to the structure and functioning of our federal system.

Acceptable for credit: UCLA, Political Science 155

SPANISH I

ELEMENTARY SPANISH

Prerequisite: None.
(Corresponds to the first two years of high school Spanish)

Lecture, 5 hours; laboratory, 1 hour.

Stresses the fundamentals of pronunciation and grammar, practical vocabulary, useful phrases, and the ability to understand, read, write, and speak simple Spanish. It includes basic facts of the geography, customs, and culture of Spain and Latin America. Emphasis is on the spoken language; use of the language laboratory is required.

Acceptable for credit: CSUN, Spanish 101.

APPENDIX B

GRADUATE LETTER AND QUESTIONNAIRE

5800 FULTON AVENUE • VAN NUYS, CALIFORNIA 91401
781-1200 or 873-4010 • PRESIDENT: ALICE J. THURSTON, Ph.D.

LOS
ANGELES
VALLEY
COLLEGE

January 6, 1976

Dear Graduate:

I would like your help in a research project designed to improve the instructional process. I am attempting to identify practical or occupational skills and attitudes that you may have learned in the subjects that are thought of as "non-vocational, academic, theory or general education" classes. These learning activities may include but not be limited to the classroom, laboratory or field trip assignment or homework assignment.

I would appreciate it if you would fill out the enclosed questionnaire and return it in the envelope provided. The coding on the questionnaire is for educational purposes only. You may sign your response if you wish, however, your identity is not essential to the study. Thanks for your assistance.

Sincerely,

L. D. Lomen

L. D. Lomen, Coordinator
Vocational and Technical
Education

Los Angeles Community College District

GRADUATE QUESTIONNAIRE

To Determine the Practical or Occupational Skills
Taught in Non-Occupational Subjects

Are you working full time___part time___unemployed___not seeking employment___(check)

According to our records you have completed one or more of the courses listed on the top line. For each course you have taken, rate the extent to which you learned the following skills, using the scale below:

4 = almost always
3 = very frequently
2 = frequently
1 = infrequently
0 = never

SKILLS	COURSES English I	 Political Science I	 Math 20	 Spanish I
1. To speak to a group				
2. To write a report				
3. To read with accuracy and understanding				
4. To be creative				
5. To be adaptable and flexible in different situations				
6. To use judgment in making decisions				
7. To be neat and systematic in the presentation of material				
8. To use scientific laboratory procedures				
9. To use computations (addition, multiplication, etc.)				
10. To put things in categories (classifying)				
11. To memorize				
12. To draw something (illustration)				
13. To understand about the environment				
14. To be a leader				
15. To understand about one's self (self-understanding)				
16. To plan work				
17. To use self-discipline in tasks or meeting a deadline				
18. To practice using shorthand				
19. To understand about other people				
20. To practice using typing skills				
21. To look up information in the library				
22. To enhance technical skills for your job				
23. Other skill (please specify)				

If there were any other courses where skills were learned, please name the courses in the space below.

Please return to L. D. Lomen, Los Angeles Valley College, 5800 Fulton Avenue, Van Nuys, CA 91401 by February 6.

APPENDIX C

INSTRUCTOR LETTER AND QUESTIONNAIRE

5800 FULTON AVENUE • VAN NUYS, CALIFORNIA 91401
781-1200 or 873-4010 • PRESIDENT: ALICE J. THURSTON, Ph.D.

LOS
ANGELES
VALLEY
COLLEGE

January 6, 1976

Dear Colleague:

I would like to enlist your help in a research project designed for instructional improvement. I am attempting to identify practical or occupational skills that are learned by your students either by intent or incidentally in the course of your instruction in your subject area. The subject areas are being limited to the so-called "academic" or "non-vocational" and theory courses. The coding letter(s) on the questionnaire are only for statistical use and not for identification.

I would appreciate it if you would fill out the enclosed questionnaire and return it in the envelope provided.

You may sign the response if you wish, however, your identity is not essential to the study. Thank you for your assistance.

Sincerely,

L. D. Lomen

L. D. Lomen, Coordinator
Vocational and Technical
Education

Los Angeles Community College District

INSTRUCTOR QUESTIONNAIRE

To Determine the Practical or Occupational Skills Taught in Non-Occupational Subjects

Teaching subject area referred to: ____________________

In your teaching, please rate the following skills or attitudes students may acquire in your class. Use the 4-0 scale (below) to indicate how much teaching in these areas you feel you give your students.

4 = almost always
3 = very frequently
2 = frequently
1 = infrequently
0 = never

Please place a check in the column that most describes the degree of teaching.

	4	3	2	1	0
1. To speak to a group					
2. To write a report					
3. To read with accuracy and understanding					
4. To be creative					
5. To be adaptable and flexible in different situations					
6. To use judgment in making decisions					
7. To be neat and systematic in the presentation of material					
8. To use scientific laboratory procedures					
9. To use computations (addition, multiplication, etc.)					
10. To put things in categories (classifying)					
11. To memorize					
12. To draw something (illustration)					
13. To understand about the environment					
14. To be a leader					
15. To understand about one's self (self-understanding)					
16. To plan work					
17. To use self-discipline in tasks or meeting a deadline					
18. To practice using shorthand					
19. To understand about other people					
20. To practice using typing skills					
21. To look up information in the library					
22. Other skill (please specify)					

Please return to L. D. Lomen, Los Angeles Valley College, by February 6.

(see opposite side)

In your homework assignments do you: (✓ = yes)

- ___ ask for typed papers?
- ___ ask for written narratives?
- ___ ask for creative work?
- ___ provide for evaluation of accuracy in work?
- ___ provide opportunity for students to make a judgment?
- ___ provide for a mathematical computation experience?
- ___ provide for memorizing experience?
- ___ provide for organizing projects or tasks?
- ___ provide for a chance to work with others?
- ___ use research methods?

Other experiences along these lines:

Briefly, would you give some specific instances how you teach the aforementioned skills and attitudes?

APPENDIX D

GUIDE TO SKILLS TAUGHT IN COURSES AND THEIR APPLICABLE OCCUPATIONS

GUIDE TO SKILLS TAUGHT IN COURSES AND THEIR APPLICABLE OCCUPATIONS

The skills listed under each subject area on the following pages are skills shown to be those most likely taught in that subject. Many, if not all, can be and are also taught in many other subjects.

The Job Area Application section is meant only to give the reader ideas for possible occupational choices that may not have been considered previously. It may also give the reader an idea of the skills that may have been learned or reinforced in the subject areas. The reader will notice much overlapping in skills and job areas listed as being particularly applicable to the subject. It would be impossible to list all the occupations where these skills apply, since they apply to almost all. For instance, it is hard to find an occupation where at least basic mathematics is not needed. Also communication skills are becoming increasingly important in the most menial of jobs. A foreign language is a facilitative skill and can be used in any job. Many of the skills listed can be also facilitative skills.

Although the skills listed are extremely important in most occupations, many qualitities go into the success of a person as a student. They are developed during that younger phase of life and transfer to make the person more employable. Such qualities as perseverance, responsibility, enthusiasm, human relations, determination, willingness to abide by policies and procedures, flexibility and adaptability, trustworthiness, and initiative seem to separate the perpetual loser from the successful person.

Robert Hammer, training specialist of the Department of Water and Power in Los Angeles, states that "areas of major don't matter anymore to the employer," and that "education teaches a mode of operation." P.T. Labins, personnel manager, Sears, Roebuck and Co., North Hollywood, feels that a "liberal arts education is just as good as a merchandising major." Joseph Dikoff, president, Ultra Industries, a development company, looks for the qualitites mentioned in the first paragraph in the semi-skilled worker. These are as important as the technical skills needed for employment. These feelings represented the statements from personnel managers and supervisors interviewed from a cross section of large, medium, and small companies.

This section is not complete. It is only to reinforce, inform, and stimulate ideas for those who are considering various occupational areas. It is hoped that the section will also make the student aware of the skills that can be learned in the various courses and alert the instructor not only to the skills that can be taught, but also to where they will have a practical application.

ENGLISH

Skills Taught

- Communication
  - Speaking
  - Writing
  - Reading
  - Interpreting
  - Discussion
  - Expression
- Creative Writing
- Imagination
- Critical Reading
- Organization of Statements

Other Course Areas Where Skills Are Taught

- Broadcasting
- Business
- Education
- Geology
- Journalism
- Management
- Merchandizing
- Philosophy
- Speech
- Supervision
- Theater Arts

Job Area Application

- Business
  - Accountant
  - Administrator
  - Administrative Secretary
  - Banker
  - Buyer
  - Fashion Coordinator
  - Insurance Agent
  - Personnel Assistant
  - Production Manager
  - Researcher
  - Salesperson

- Communications
  - Copy Reader
  - Proofreader
  - Publicist
  - Writer

- Government Service
  - Civil Servant
  - Foreign Service Officer

- Performing Arts
  - Actor
  - Drama Coach

- Other Professions
  - Education Therapist
  - Engineer
  - Lawyer
  - Lecturer
  - Librarian
  - Pre-law Student
  - Pre-medical Student
  - Teacher

- Service
  - Auctioneer

HISTORY

Skills Taught

- Analysis
- Discussion
- Expression
  - Verbal
  - Written
- Human Understanding
- Inventiveness
- Logic
- Memorization
- Rationality
- Research Methods

Other Course Areas Where Skills Are Taught

- Afro-American Studies
- Anthropology
- Broadcasting
- Business
- Education
- English
- Humanities
- Jewish Studies
- Journalism
- Law
- Management
- Mathematics
- Mexican-American Studies
- Philosophy
- Psychology
- Speech
- Sociology
- Supervision

Job Area Applications

- Business
  - Analyst
  - Manager
  - Researcher
  - Travel Agent

- Clergy
  - Minister

- Communications
  - Author
  - Publisher
  - Researcher
    - Movies
    - Television
    - Journalism
  - Writer
    - Biographer
    - Book Critic
    - Foreign Correspondent
    - Information Specialist
    - Journalist
    - Legislative Assistant
    - Magazine Editor
    - Novelist

- Writer continued
  - Playwright
  - Re-writer
  - Scenario Writer
  - Story Writer

- Natural Science Occupations
  - Paleontologist

- Other Professions
  - Curator
  - Lawyer
  - Librarian
    - Assistant
  - Museum Specialist

- Social Science Occupations
  - Anthropologist
  - Archaeologist
    - Assistant
  - Archivist
  - Ethnologist
  - Genealogist
  - Historian
  - Political Scientist
  - Sociologist
  - Teacher

MATHEMATICS

Skills Taught

- Analysis, Quantitative
- Concepts, Ability to Grasp
- Inventiveness
- Logic
- Memorization
- Organization
- Perception
- Verbal Expression

Some Other Course Areas Where Skills Are Taught

- Business
- Chemistry
- Engineering
- English
- Geology
- Management
- Philosophy
- Physics
- Speech
- Supervision

Job Area Applications

- Building Trades Occupations
    - Carpenter
    - Plumber
    - Electrician

- Business Occupations
    - Accountant
    - Actuary
    - Auditor
    - Bill Collector
    - Bookkeeper
    - Budget Officer
    - Bursar
    - Business Manager
    - Cashier
    - Clerk
        - Office
        - Payroll
        - Sales
        - Shipping
        - Receiving
    - Controller
    - Cost Analyst
    - Fiscal Officer
    - Office Machine Operator
    - Operations Research Analyst
    - Project Manager
    - Project Planner
    - Ticket Manager
    - Traffic Manager
    - Treasurer

- Computer Science Occupations

- Conservation Occupations
    - Forester

- Machining Occupations
    - Machinist
    - Tool Designer
    - Tool and Die Maker

- Mathematics Occupations
    - Industrial Mathematician
    - Mathematical Statistician
    - Mathematical Physicist
    - Statistical Analyzer
    - Statistical Clerk

- Manual Occupations
    - Gas Station Attendant

- Mechanics and Repairment
    - Mechanic

- Natural Science Occupations
    - Astronomer
    - Bacteriologist
    - Biomathematician
    - Biophysicist
    - Botanist
    - Chemist
    - Food Technologist

MATHEMATICS (Continued)

Job Area Applications

- Natural Science Occupations (Cont'd)
    - Geodesist
    - Geologist
    - Geophysicist
        - Hydrologist
    - Meterologist
    - Oceanographer
- Other Professions
    - Cyberneticist
    - Demographer
    - Dental or Doctor's Assistant
    - Engineering
        - Aerodynamics
        - Aeroelasticity
        - Aeronautics
        - Automic Energy
        - Chemical
        - Civil
        - Electrical
        - Industrial
        - Marine
        - Mechanical
        - Psychologist (Human Factors)
        - Radio
        - Stress Analyst
    - Optician
    - Optometrist
    - Psychologist
    - Surveyor
- Teaching Occupations
    - Teacher
- Technical Occupations
    - Draftsman
    - Electrician
    - Laboratory Assistant
- Transportation Occupations
    - Navigator

FOREIGN LANGUAGE

Skills Taught

- Analysis
- Communication
  - Verbal-Written
- Exactness
- Inventiveness
- Memorization
- Originality
- Reading
  - Understanding
- Relating to People
- Vocabulary

Other Course Areas Where Skills Are Taught

- Business
- Education
- English
- History
- Humanities
- Journalism
- Law
- Management
- Philosophy
- Psychology
- Sociology
- Supervision

Job Area Applications

- Business Occupations
  - Advertiser
  - Banker
  - Book Dealer
  - Bookkeeper
  - Buyer
  - Exporter
  - Foreign Exchange Clerk
  - Foreign Market Researcher
  - Foreign Operations Director
  - Hotel Manager
  - Importer
  - International Businessman
  - Interpreter
  - Interviewer
  - Office Manager
  - Personnel Director
  - Receptionist
  - Researcher
  - Salesman
  - Secretary
    - Bilingual
    - Corresponding
    - Diplomatic
  - Stenographer
    - Bilingual
  - Trade Analyst
  - Translator
  - Travel Agent

- Civil Aviation Occupations
  - Airline Steward
  - Airline Stewardess

- Clergy
  - Religious Worker

- Communication Occupations
  - Foreign Correspondent
  - Foreign Broadcast Commentator
  - Foreign Editorial Assistant
  - Foreign News Translator
  - Radio & TV Announcer
  - Radio Monitor
  - Script Writer & Translator
  - Translator
  - Writer
    - Bibliographer

- Government Service Occupations
  - Civil Service Worker
  - Consul
  - Consular Invoice Clerk
  - Customs Inspector
  - Diplomat
    - Assistant

FOREIGN LANGUAGE (Continued)

Job Area Applications

Government Service Occupations (Cont'd)
- Secretary
- Intelligence Officer
- Interpreter
- Interviewer
- Translator

Health Service Occupations
- Nurse
- Paramedic
- Physician

Other Professions
- Librarian
  - College
  - Film
  - Medical
  - Music
  - Public
  - Special
- Red Cross Worker
- Social Case Worker

Performing Arts Occupations
- Actor
- Singer

APPENDIX E

SUMMARY TABLES

Table 9

MEAN RATINGS GIVEN TO BASIC SKILLS LEARNED IN ENGLISH I CLASSES BY OCCUPATIONAL STUDENTS, NON-OCCUPATIONAL STUDENTS AND INSTRUCTORS

Scale: 0 = never, 1 = infrequently, 2 = frequently,
3 = very frequently, 4 = almost always

BASIC SKILL RATED		OCCUPATIONAL GRADUATES	NON-OCCUPATIONAL GRADUATES	INSTRUCTORS
1. To speak to a group	M*	1.7	1.6	1.6
	N*	157	273	17
2. To write a report	M	2.9	3.0	3.7
	N	150	272	17
3. To read with accuracy and understanding	M	2.8	2.8	3.7
	N	155	273	17
4. To be creative	M	2.5	2.6	2.7
	N	157	273	17
5. To be adaptable and flexible in different situations	M	1.8	1.9	2.2
	N	154	271	17
6. To use judgment in making decisions	M	1.7	1.7	2.8
	N	156	271	17
7. To be neat and systematic in the presentation of material	M	2.7	3.0	3.4
	N	156	273	17
8. To use scientific laboratory procedures	M	.5	.6	.6
	N	156	271	17
9. To use computations (addition, multiplication, etc.	M	.4	.3	.4
	N	156	272	17
10. To put things in categories (classifying)	M	2.0	1.9	2.8
	N	157	271	17

*M = mean
N = number of respondents

Table 9 (continued)

BASIC SKILL RATED		OCCUPATIONAL GRADUATES	NON-OCCUPATIONAL GRADUATES	INSTRUCTORS
11. To memorize	M	1.7	1.6	1.8
	N	156	272	17
12. To draw something (illustration)	M	.4	.5	.5
	N	157	272	17
13. To understand about the environment	M	1.3	1.2	1.7
	N	157	273	17
14. To be a leader	M	1.2	1.0	1.5
	N	156	272	17
15. To understand about one's self (self-understanding)	M	1.7	1.6	2.8
	N	156	271	17
16. To plan work	M	2.3	2.4	3.7
	N	155	272	17
17. To use self-discipline in tasks or meeting a deadline	M	2.4	2.7	3.5
	N	156	271	17
18. To practice using shorthand	M	.3	.2	.2
	N	157	272	17
19. To understand about other people	M	1.9	1.8	2.9
	N	157	272	17
20. To practice using typing skills	M	1.3	1.5	1.1
	N	155	273	17
21. To look up information in the library	M	2.2	2.4	3.2
	N	157	273	17
22. To enhance technical skills for your job	M	1.6	1.3	
	N	157	270	

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Table 10

MEAN RATINGS GIVEN TO BASIC SKILLS LEARNED IN MATHEMATICS 20 CLASSES BY OCCUPATIONAL STUDENTS, NON-OCCUPATIONAL STUDENTS AND INSTRUCTORS

Scale: 0 = never, 1 = infrequently, 2 - frequently,
3 = very frequently, 4 = almost always

BASIC SKILL RATED		OCCUPATIONAL GRADUATES	NON-OCCUPATIONAL GRADUATES	INSTRUCTORS
1. To speak to a group	M*	.6	.5	.7
	N*	47	110	16
2. To write a report	M	.5	.3	.4
	N	47	107	16
3. To read with accuracy and understanding	M	1.6	1.6	3.4
	N	49	107	16
4. To be creative	M	.7	.9	2.3
	N	52	107	16
5. To be adaptable and flexible in different situations	M	1.3	1.5	2.9
	N	52	109	16
6. To use judgment in making decisions	M	1.6	1.9	2.8
	N	52	109	16
7. To be neat and systematic in the presentation of material	M	1.8	2.5	3.2
	N	51	110	16
8. To use scientific laboratory procedures	M	1.0	1.4	1.8
	N	51	109	16
9. To use computations (addition, multiplication, etc.)	M	3.0	3.4	3.8
	N	52	110	16
10. To put things in categories (classifying)	M	2.1	2.4	2.4
	N	51	110	16

*M = mean
N = number of respondents

Table 10(continued)

BASIC SKILL RATED		OCCUPATIONAL GRADUATES	NON-OCCUPATIONAL GRADUATES	INSTRUCTORS
11. To memorize	M	1.9	2.6	2.3
	N	51	107	16
12. To draw something (illustration)	M	.9	1.3	2.3
	N	52	108	16
13. To understand about the environment	M	.4	.4	1.1
	N	52	109	16
14. To be a leader	M	.7	.7	.6
	N	51	109	16
15. To understand about one's self (self-understanding)	M	.6	.7	1.2
	N	51	110	16
16. To plan work	M	1.6	2.1	3.0
	N	51	110	16
17. To use self-discipline in tasks or meeting a deadline	M	1.7	2.3	3.2
	N	52	110	16
18. To practice using shorthand	M	.2	.1	.4
	N	52	109	16
19. To understand about other people	M	.6	.5	.7
	N	50	106	16
20. To practice using typing skills	M	.2	.1	0
	N	50	109	16
21. To look up information in the library	M	.3	.5	.9
	N	50	109	16
22. To enhance technical skills for your job	M	2.2	1.7	
	N	51	107	

Table 11

MEAN RATINGS GIVEN TO BASIC SKILLS LEARNED IN POLITICAL SCIENCE I CLASSES BY OCCUPATIONAL STUDENTS, NON-OCCUPATIONAL STUDENTS AND INSTRUCTORS

Scale: 0 = never, 1 = infrequently, 2 = frequently,
3 = very frequently, 4 = almost always

BASIC SKILL RATED		OCCUPATIONAL GRADUATES	NON-OCCUPATIONAL GRADUATES	INSTRUCTORS
1. To speak to a group	M*	.8	.8	1.5
	N*	114	178	6
2. To write a report	M	1.1	1.3	2.7
	N	117	177	6
3. To read with accuracy and understanding	M	1.9	2.1	3.8
	N	117	179	6
4. To be creative	M	.8	1.0	2.3
	N	115	176	6
5. To be adaptable and flexible in different situations	M	1.4	1.7	3.0
	N	117	177	6
6. To use judgment in making decisions	M	1.5	1.7	3.7
	N	117	178	6
7. To be neat and systematic in the presentation of material	M	1.7	1.8	3.3
	N	117	178	6
8. To use scientific laboratory procedures	M	.4	.4	1.2
	N	117	178	6
9. To use computations (addition, multiplication, etc.)	M	.3	.4	.7
	N	117	178	6
10. To put things in categories (classifying)	M	1.4	1.7	2.5
	N	117	178	6

*M = mean
N = number of respondents

Table 11 (continued)

BASIC SKILL RATED		OCCUPATIONAL GRADUATES	NON OCCUPATIONAL GRADUATES	INSTRUCTORS
11. To memorize	M	2.0	2.2	2.3
	N	117	179	6
12. To draw something (illustration)	M	.3	.5	.5
	N	117	179	6
13. To understand about the environment	M	1.3	1.8	2.7
	N	117	179	6
14. To be a leader	M	1.3	1.4	1.3
	N	117	178	6
15. To understand about one's self (self-understanding)	M	1.1	1.3	2.5
	N	117	177	6
16. To plan work	M	1.6	1.7	3.0
	N	117	178	6
17. To use self-discipline in tasks or meeting a deadline	M	1.8	2.3	3.8
	N	117	178	6
18. To practice using shorthand	M	.4	.3	.3
	N	117	178	6
19. To understand about other people	M	2.0	2.2	3.5
	N	117	177	6
20. To practice using typing skills	M	.8	.8	1.5
	N	117	178	6
21. To look up information in the library	M	1.5	1.8	2.8
	N	117	179	6
22. To enhance technical skills for your job	M	.8	.7	
	N	114	177	

Table 12

MEAN RATINGS GIVEN TO BASIC SKILLS LEARNED IN SPANISH I CLASSES BY OCCUPATIONAL STUDENTS, NON-OCCUPATIONAL STUDENTS AND INSTRUCTORS

Scale: 0 = never, 1 = infrequently, 2 = frequently
3 = very frequently, 4 = almost always

BASIC SKILL RATED		OCCUPATIONAL GRADUATES	NON-OCCUPATIONAL GRADUATES	INSTRUCTORS
1. To speak to a group	M*	1.8	1.7	2.1
	N*	34	78	7
2. To write a report	M	.5	.7	1.2
	N	35	79	7
3. To read with accuracy and understanding	M	1.8	1.6	3.7
	N	35	78	7
4. To be creative	M	.9	1.2	2.1
	N	34	79	7
5. To be adaptable and flexible in different situations	M	1.5	1.6	2.2
	N	35	79	7
6. To use judgment in making decisions	M	.8	1.0	2.8
	N	35	77	7
7. To be neat and systematic in the presentation of material	M	1.4	1.7	2.1
	N	35	78	7
8. To use scientific laboratory procedures	M	.2	.6	.9
	N	35	76	7
9. To use computations (addition, multiplication, etc.)	M	.3	.2	.1
	N	35	77	7
10. To put things in categories (classifying)	M	1.0	1.5	3.1
	N	35	76	7

*M = mean
N = number of respondents

Table 12 (continued)

BASIC SKILL RATED		OCCUPATIONAL GRADUATES	NON-OCCUPATIONAL GRADUATES	INSTRUCTORS
11. To memorize	M	2.5	2.8	3.5
	N	35	77	7
12. To draw something (illustration)	M	.1	.2	0
	N	35	77	7
13. To understand about the environment	M	.8	.6	.3
	N	35	78	7
14. To be a leader	M	.9	.7	1.0
	N	35	77	7
15. To understand about one's self (self-understanding)	M	.8	.8	1.5
	N	34	77	7
16. To plan work	M	1.6	1.8	2.1
	N	35	77	7
17. To use self-discipline in tasks or meeting a deadline	M	1.8	2.2	2.6
	N	35	77	7
18. To practice using shorthand	M	.4	.1	0
	N	34	77	7
19. To understand about other people	M	1.8	1.7	2.9
	N	35	77	7
20. To practice using typing skills	M	.7	.3	.1
	N	34	77	7
21. To look up information in the library	M	.8	.7	1.0
	N	35	77	7
22. To enhance technical skills for your job	M	1.5	.9	
	N	35	75	

Table 13

OCCUPATIONAL GRADUATES PERCEPTIONS
OF QUESTIONS IN RANK ORDER

ENGLISH	POLITICAL SCIENCE I	MATHEMATICS 20	SPANISH I
2. To write a report	11. To memorize	9. To use computations (addition, multiplication, etc.)	11. To memorize
3. To read with accuracy and understanding	19. To understand about other people	22. To enhance technical skills for your job	1. To speak to a group
7. To be neat and systematic in the presentation of material	3. To read with accuracy and understanding	10. To put things in categories (classifying)	3. To read with accuracy and understanding
4. To be creative	17. To use self-discipline in tasks or meeting a deadline	11. To memorize	17. To use self-discipline in tasks or meeting a deadline
17. To use self-discipline in tasks or meeting a deadline	7. To be neat and systematic in the presentation of material	7. To be neat and systematic in the presentation of material	19. To understand about other people
21. To look up information in the library	13. To understand about the environment	17. To use self-discipline in tasks or meeting a deadline	16. To plan work
10. To put things in categories (classifying)	16. To plan work	3. To read with accuracy and understanding	5. To be adaptable and flexible in different situations
19. To understand about other people	6. To use judgment in making decisions	6. To use judgment in making decisions	22. To enhance technical skills for your job
5. To be adaptable and flexible in different situations	21. To look up information in the library	16. To plan work	7. To be neat and systematic in the presentation of material
1. To speak to a group	5. To be adaptable and flexible in different situations	5. To be adaptable and flexible in different situations	10. To put things in categories (classifying)
6. To use judgment in making decisions	10. To put things in categories (classifying)	8. To use scientific laboratory procedures	4. To be creative
11. To memorize	14. To be a leader	12. To draw something (illustration)	14. To be a leader
15. To understand about one's self (self-understanding)	2. To write a report	4. To be creative	6. To use judgment in making decisions
22. To enhance technical skills for your job	15. To understand about one's self (self-understanding)	1. To speak to a group	13. To understand about the environment
13. To understand about the environment	1. To speak to a group	14. To be a leader	15. To understand about one's self (self-understanding)
16. To plan work	4. To be creative	15. To understand about one's self (self-understanding)	21. To look up information in the library
20. To practice using typing skills	20. To practice using typing skills	19. To understand about other people	20. To practice using typing skills
14. To be a leader	22. To look up information in the library	2. To write a report	2. To write a report
8. To use scientific laboratory procedures	8. To use scientific laboratory procedures	13. To understand about the environment	18. To practice using shorthand
12. To draw something (illustration)	18. To practice using shorthand	21. To look up information in the library	9. To use computations (addition, multiplication, etc.)
9. To use computations (addition, multiplication, etc.)	9. To use computations (addition,	20. To practice using typing skills	8. To use scientific laboratory procedures
18. To practice using shorthand	12. To draw something (illustration)	18. To practice using shorthand	12. To draw something (illustration)

Table 14
NON-OCCUPATIONAL GRADUATES PERCEPTIONS
OF QUESTIONS IN RANK ORDER

ENGLISH I	POLITICAL SCIENCE I	MATHEMATICS 20	SPANISH I
2. To write a report	17. To use self-discipline in tasks or meeting a deadline	9. To use computations (addition, multiplication, etc.	11. To memorize
7. To be neat and systematic in the presentation of material	11. To memorize	11. To memorize	17. To use self-discipline in tasks or meeting a deadline
3. To read with accuracy and understanding	19. To understand about other people	7. To be neat and systematic in the presentation of material	16. To plan work
17. To use self-discipline in tasks or meeting a deadline	3. To read with accuracy and understanding	10. To put things in categories (classifying)	1. To speak to a group
4. To be creative	7. To be neat and systematic in the presentation of material	17. To use self-discipline in tasks or meeting a deadline	7. To be neat and systematic in the presentation of material
21. To look up information in the library	13. To understand about the environment	16. To plan work	19. To understand about other people
16. To plan work	21. To look up information in the library	6. To use judgment in making decisions	3. To read with accuracy and understanding
5. To be adaptable and flexible in different situations	5. To be adaptable and flexible in different situations	22. To enhance technical skills for your job	5. To be adaptable and flexible in different situations
10. To put things in categories (classifying)	6. To use judgment in making decisions	3. To read with accuracy and understanding	10. To put things in categories (classifying)
19. To understand about other people	10. To put things in categories (classifying)	5. To be adaptable and flexible in different situations	4. To be creative
6. To use judgment in making decisions	16. To plan work	8. To use scientific laboratory procedures	6. To use judgment in making decisions
1. To speak to a group	14. To be a leader	12. To draw something (illustration)	22. To enhance technical skills for your job
11. To memorize	2. To write a report	4. To be creative	15. To understand about one's self (self-understanding)
15. To understand about one's self (self-understanding)	15. To understand about one's self (self-understanding)	14. To be a leader	2. To write a report
20. To practice using typing skills	4. To be creative	15. To understand about one's self (self-understanding)	21. To look up information in the library
22. To enhance technical skills for your job	1. To speak to a group	1. To speak to a group	14. To be a leader
13. To understand about the environment	20. To practice using typing skills	19. To understand about other people	13. To understand about the environment
14. To be a leader	22. To enhance technical skills for your job	21. To look up information in the library	8. To use scientific laboratory procedures
8. To use scientific laboratory procedures	12. To draw something (illustration)	13. To understand about the environment	20. To practice using typing skills
12. To draw something (illustration)	8. To use scientific laboratory procedures	2. To write a report	9. To use computations (addition, multiplication, etc.)
9. To use computations (addition, multiplication, etc.)	9. To use computations (addition, multiplication, etc.)	18. To practice using shorthand	12. To draw something (illustration)
18. To practice using shorthand	18. To practice using shorthand	20. To practice using typing skills	18. To practice using shorthand

VITA

Lynn D. Lomen was born in Minot, North Dakota, on March 21, 1927, and now resides in Canoga Park, California.

Professional Experience

Current position: Coordinator of Vocational and Technical Education at Los Angeles Valley College.

Past positions: Director of athletics, Los Angeles Valley College.
Physical education instructor and coach, Los Angeles Valley College.
Teacher of physical education, science, and math (Jr. High and High Schools) Los Angeles Unified School District.

Education

Occidental College 1950
    A.B. in physical education

University of Southern California 1951
    M.S. in education
    General Secondary Credential
    General Administrative Credential

Published In:

Western Interstate Commission for Higher Education Newsletter
Journal of College Placement
Scholastic Coach
Journal of Physical Education and Recreation
ERIC, Clearinghouse for Junior Colleges
Camping Magazine
Self-Defense World
The Sportswoman
Ski Magazine
Southwest Skier Magazine

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